Compilation of Changes to the CPC Scheme Between 2015.04 and 2015.05

Presentation Details

Entries for new symbols and headings: *Black text in italics*
Entries for existing symbols and headings
—text insertions: *Green text in italics with yellow background*
—text deletions: *Red strikethrough text with grey background*
Entries for deleted symbols and headings: *Black strikethrough text*

• In cases when the originating project cannot be found, "N/A" is given for the Project information (e.g. the change could be due to an Editorial Correction).
• Projects ending in "-F" indicate finalisation after reclassification was completed.

Project: N/A (A01B)

U A01B 1/00  Hand tools (edge trimmers for lawns [A01G 3/06]; machines for working soil [A01B 35/00]; making hand tools [B21D])
A01B 1/02  • Spades; Shovels ((hand-operated dredgers [E02F 3/02])
A01B 1/06  • Hoes; Hand cultivators ((rakes [A01D 7/00]; forks [A01D 9/00]; picks [B25D])

U A01B 3/00  Ploughs with fixed plough-shares
A01B 3/64  • Cable ploughs; Indicating or signalling devices for cable plough systems ((vehicles towed by cable [B60D]))

U A01B 15/00  Elements, tools, or details of ploughs
U A01B 15/02  • Plough blades; Fixing the blades
A01B 15/04  •  • Shares ((making ploughshares by rolling [B21H]))
A01B 19/00  Harrows with non-rotating tools ((harrows for working in vineyards [A01B 39/16])
A01B 29/00  Rollers ((rollers for roads [E01C]))

U A01B 45/00  Machines for treating meadows or lawns, (e.g. for sports grounds)
A01B 45/04  • for cutting sods or turves ((machines for lifting and treating soil [A01B 77/00]))

U A01B 49/00  Combined machines (auxiliary devices attached to machines of a different kind, e.g. harrows attached to ploughs, see the relevant groups for the machines)
A01B 49/04  • Combinations of soil-working tools with non-soil-working tools, e.g. planting tools ((seeding machines [A01C 7/00]; harvesters combined with soil-working implements [A01D 43/12]))
A01B 71/00  Construction or arrangement of setting or adjusting mechanisms, of implement or tool drive or of power take-off; Means for protecting parts against dust, or the like; Adapting machine elements to or for agricultural purposes ((adjusting mechanisms in general [G05G]))

Project: N/A (A01C)

U A01C 15/00  Fertiliser distributors ([A01C 7/06] takes precedence; (combined with seeders [A01C 7/06]); arrangements for driving working parts [A01C 19/00]; (harrows with special additional arrangements [A01B 19/00]; sand, gravel or salt spreaders for roads [E01C 19/20])
U A01C 15/06  • with distributing slots, (i.e. for dosing, e.g. adjustable openings)
U A01C 15/08  •  • with pushers or stirrers in the slots
A01C 15/10  •  •  • with reciprocating pushers (or stirrers in front of the slots (with endless chains [A01C 15/18]))
**NOTES**

1. This subclass covers the shredding or pulverising of stubble, e.g. for the purpose of producing mulch, but does not cover other mechanical destruction of unwanted vegetation, which is covered by group A01M 21/02

2. In this subclass, in groups A01D 34/00, A01D 42/00, A01D 43/00, A01D 57/00, A01D 67/00, A01D 69/00 and A01D 75/00, it is desirable to add the indexing code of group A01D 2101/00

**A01D 9/00** Forks {(making forks from sheet metal B21D 53/68 ; making forks by rolling B21H 7/08)}

**A01D 11/00** Other hand implements {(for maize A01D 45/026, for cotton A01D 46/087)}

**A01D 31/00** Other digging harvesters {(for harvesting asparagus A01D 45/007)}

**A01D 37/00** Reaper-binders (features relating to mowing only A01D 34/00, to binding only A01D 39/00; equipment thereon for binding harvested produce, e.g. knotters, A01D 59/00; { bundling articles B65B 13/00})

A01D 37/02 · with receiving platform and binding apparatus but without elevating canvases {(knotting D04G)}

A01D 37/04 · conveying the stalks in vertical position {(delivering devices for standing stalks A01D 57/22)}

A01D 37/06 · binding with stalks or straw bands {(implements for laying-out bands for sheaves A01D 75/16)}

**A01D 42/00** Mowers convertible to apparatus for purposes other than mowing; Mowers capable of performing operations other than mowing (mowers combined with apparatus performing additional operations while mowing A01D 43/00)

A01D 42/06 · Sweeping or cleaning lawns or other surfaces {(sweeping apparatus for lawns per se A01G 1/125)}

**A01D 43/00** Mowers combined with apparatus performing additional operations while mowing (A01D 37/00, A01D 39/00, A01D 41/00, take precedence)

A01D 43/06 · with means for collecting, gathering or loading mown material {(A01D 43/086 takes precedence; for hay or the like A01D 87/00)}

A01D 43/08 · with means for cutting up the mown crop, {e.g. forage harvesters (threshing machines having chaff-cutters A01F 12/40; cutting apparatus of chaff-cutters or of apparatus for cutting up mown crop A01F 29/00)}

A01D 43/10 · with means for crushing or bruising the mown crop {(stalk crushers or bruisers per se for standing stalks or stubbles A01D 34/8355, for mown crop A01D 82/00, for straw A01F 12/40)}

**A01D 45/00** Harvesting of standing crops (A01D 44/00 takes precedence; threshing machines adapted for special crops, threshing devices for combines adapted for special crops A01F 11/00)

A01D 45/02 · of maize, i.e. kernel harvesting (for ensilage maize A01D 43/081)

A01D 45/10 · of sugar cane {(for digging sugar cane A01D 31/00)}
U A01D 46/00  Picking of fruits, vegetables, hops, or the like; Devices for shaking trees or shrubs

NOTE
In this group, group A01D 46/30 takes precedence over groups A01D 46/02 to A01D 46/28

U A01D 46/08
  · of cotton
A01D 46/10
  · · pneumatically ((A01D 46/081 to A01D 46/088 take precedence))

U A01D 57/00  Delivering mechanisms for harvesters or mowers
U A01D 57/01  · Devices for leading crops to the mowing apparatus
U A01D 57/02  · · using reels
A01D 57/03  · · · with supplementary controlled movement of the crop-engaging members, e.g. of the tines ((A01D 57/025 takes precedence))

U A01D 87/00  Loaders for hay or like field crops (combined with mowers A01D 43/06; { loading in forage silos A01F 25/18; }; loading in general B65G, B66)
A01D 87/08  · with sweep rakes, (i.e. buck-rakes, e.g. transporting rakes (gripping or clamping devices A01D 87/003; fork loaders A01D 87/0053))
A01D 87/10  · with blowers ((blowing and conveying B65G 53/00; loading or distributing arrangements in forage silos A01F 25/18))
A01D 89/00  Pick-ups for loaders, chaff-cutters, balers, field-threshers, or the like {i.e. attachments for picking-up hay or the like field crops (field threshers with windrow pick-up apparatus A01D 41/10)}

U A01D 90/00  Vehicles for carrying harvested crops with means for self-loading or unloading (combined with mowers A01D 43/06; load transporting vehicles modified to facilitate loading in general B60P; bucket cars, i.e. having scraper bowls E02F 3/64)
A01D 90/02  · Loading means ({loaders A01D 87/00; pick-ups A01D 89/00})
A01D 90/10  · Unloading means {{manure distributors A01C 3/06}}

Project: N/A (A01G)

U A01G 13/00  Protecting plants (apparatus for the destruction of vermin or noxious animals A01M; use of chemical materials therefor, composition of protective materials, e.g. grafting wax, A01N; {coverings around trees forming part of a road E01C 9/005})

U A01G 13/02  · Protective coverings for plants; { Coverings for the ground;} Devices for laying-out (or removing) coverings ((covering materials A01G 9/1438))
A01G 13/04  · · Cloches { i.e. protective full coverings for individual plants (dismountable or portable greenhouses A01G 9/16; individual canopies A01G 13/0212)}

Project: RP0020 (A01K)

C A01K 89/00  Reels (devices for casting lines A01K 91/02)

WARNING
Group A01K 89/00 is impacted by reclassification into group A01K 89/004. Groups A01K 89/00 and A01K 89/004 should be considered in order to perform a complete search.

U A01K 89/003  · (Devices for transferring line to a reel)
**WARNING**

Group A01K 89/004 is incomplete pending reclassification of documents from group A01K 89/00. Groups A01K 89/00 and A01K 89/004 should be considered in order to perform a complete search.

**WARNING**

Group A01K 89/006 is incomplete pending reclassification of documents from group A01K 89/006. Groups A01K 89/006 and A01K 89/009 should be considered in order to perform a complete search.

**WARNING**

Group A01K 89/01 is impacted by reclassification into groups A01K 89/0106, A01K 89/01121, A01K 89/011221, A01K 89/011222, A01K 89/011223, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125, and A01K 89/0126. All groups listed in this Warning should be considered in order to perform a complete search.

**WARNING**

Group A01K 89/0102 is impacted by reclassification into groups A01K 89/01025, A01K 89/01026, and A01K 89/01029. All groups listed in this Warning should be considered in order to perform a complete search.

**WARNING**

Groups A01K 89/01025, A01K 89/01026, and A01K 89/01029 are incomplete pending reclassification of documents from group A01K 89/0102. All groups listed in this Warning should be considered in order to perform a complete search.

**WARNING**

Groups A01K 89/01025, A01K 89/01026, and A01K 89/01029 are incomplete pending reclassification of documents from group A01K 89/0102. All groups listed in this Warning should be considered in order to perform a complete search.

**WARNING**

Group A01K 89/0106, A01K 89/01121, A01K 89/011221, A01K 89/011222, A01K 89/011223, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125, and A01K 89/0126 are incomplete pending reclassification of documents from group A01K 89/01. All groups listed in this Warning should be considered in order to perform a complete search.
WARNING

Group A01K 89/0108 is impacted by reclassification into group A01K 89/01081. Groups A01K 89/0108 and A01K 89/01081 should be considered in order to perform a complete search.

N A01K 89/01081 · · · {Guiding members on rotor axially rearward of spool}

WARNING

Groups A01K 89/01081, A01K 89/01082, A01K 89/01083, A01K 89/01084, A01K 89/01085, A01K 89/01086, A01K 89/01087, and A01K 89/01088 are incomplete pending reclassification of documents from group A01K 89/0108.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/01082 · · · · {Guiding members shiftable on rotor}
N A01K 89/01083 · · · · · {to wind position by rotor drive}
N A01K 89/01084 · · · · · · {Guiding members shifted to unwind position by discrete manual operators}
N A01K 89/01085 · · · · {Guiding members on rotor forward of spool (A01K 89/0102 takes precedence)}

WARNING

Groups A01K 89/01081, A01K 89/01082, A01K 89/01083, A01K 89/01084, A01K 89/01085, A01K 89/01086, A01K 89/01087, and A01K 89/01088 are incomplete pending reclassification of documents from group A01K 89/0108.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/01086 · · · · {with rotor drive shifting the guiding member to unwind and wind positions}
N A01K 89/01087 · · · · {with manual actuator to shift guiding member to unwind position}
N A01K 89/01088 · · · · · {Actuators forward of spool}
U A01K 89/0111 · · · {Frame details}
N A01K 89/01121 · · · {Spool details}

WARNING

Groups A01K 89/0106, A01K 89/01121, A01K 89/011221, A01K 89/011222, A01K 89/011223, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125 and A01K 89/0126 are incomplete pending reclassification of documents from group A01K 89/01.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/011221 · · · · {with line or water shields}
N A01K 89/011222 · · · · {with lubrication features}
N A01K 89/011223 · · · · {with bearing features}
N A01K 89/01123 · · · · {Frame disassembly features}
N A01K 89/01124 · · · · {Hinged frame sections}
N A01K 89/01125 · · · · {Rotated joints}
N A01K 89/01126 · · · · · {Threaded}
N  A01K 89/01127  · · · {Reel supports}
N  A01K 89/0113  · · {Spool locking devices on spool shaft}

**WARNING**

Groups A01K 89/0106, A01K 89/01121, A01K 89/01122, A01K 89/011221, A01K 89/011222, A01K 89/011223, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125, and A01K 89/0126 are incomplete pending reclassification of documents from group A01K 89/01. All groups listed in this Warning should be considered in order to perform a complete search.

C  A01K 89/0114  · · {Reciprocating mechanisms}

**WARNING**

Group A01K 89/0114 is impacted by reclassification into groups A01K 89/01141, A01K 89/01142, and A01K 89/01143. All groups listed in this Warning should be considered in order to perform a complete search.

N  A01K 89/01141  · · {Including eccentric cams reciprocating the spool}

**WARNING**

Groups A01K 89/01141, A01K 89/01142, and A01K 89/01143 are incomplete pending reclassification of documents from group A01K 89/0114. All groups listed in this Warning should be considered in order to perform a complete search.

N  A01K 89/01142  · · {for reciprocating the guiding member}

**WARNING**

Groups A01K 89/01141, A01K 89/01142, and A01K 89/01143 are incomplete pending reclassification of documents from group A01K 89/0114. All groups listed in this Warning should be considered in order to perform a complete search.

N  A01K 89/01143  · · · {Reversely threaded screws}
C  A01K 89/0117  · · {Anti-reverse mechanisms}

**WARNING**

Group A01K 89/0117 is impacted by reclassification into group A01K 89/0118. Groups A01K 89/0117 and A01K 89/0118 should be considered in order to perform a complete search.

N  A01K 89/0118  · · · {Defining home position of reel part}

**WARNING**

Groups A01K 89/0118 is incomplete pending reclassification of documents from group A01K 89/0117. Groups A01K 89/0117 and A01K 89/0118 should be considered in order to perform a complete search.

C  A01K 89/012  · · Motor-driven

**WARNING**

Group A01K 89/012 is impacted by reclassification into group A01K 89/0121. Groups A01K 89/012 and A01K 89/0121 should be considered in order to perform a complete search.
N A01K 89/0121 · · · (Spring motors)

**WARNING**

Group **A01K 89/0121** is incomplete pending reclassification of documents from group **A01K 89/012**.

Groups **A01K 89/012** and **A01K 89/0121** should be considered in order to perform a complete search.

N A01K 89/0122 · · · (with unwinding indicators, e.g. bell or flashing light)

**WARNING**

Groups **A01K 89/0106, A01K 89/01121, A01K 89/01122, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125, and A01K 89/0126** are incomplete pending reclassification of documents from group **A01K 89/01**.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0123 · · · (Clicking indicators, e.g. flexible pawl and toothed member)
N A01K 89/0124 · · · (Spring biased pawls)
N A01K 89/0125 · · · · (Plural spring sections)
N A01K 89/0126 · · · · (with line unwinding limiters)

**WARNING**

Groups **A01K 89/0106, A01K 89/01121, A01K 89/01122, A01K 89/01123, A01K 89/01124, A01K 89/01125, A01K 89/01126, A01K 89/01127, A01K 89/0113, A01K 89/0122, A01K 89/0123, A01K 89/0124, A01K 89/0125, and A01K 89/0126** are incomplete pending reclassification of documents from group **A01K 89/01**.

All groups listed in this Warning should be considered in order to perform a complete search.

C A01K 89/015 · · · with [a] rotary drum *(i.e. with a rotating spool)* (**A01K 89/033** takes precedence)

**WARNING**

Group **A01K 89/015** is impacted by reclassification into groups **A01K 89/0175, A01K 89/0176, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/0190, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, and A01K 89/01931**.

All groups listed in this Warning should be considered in order to perform a complete search.

C A01K 89/0155 · · Antibacklash devices

**WARNING**

Group **A01K 89/0155** is impacted by reclassification into groups **A01K 89/01556 and A01K 89/01557**.

Groups **A01K 89/0155, A01K 89/01556 and A01K 89/01557** should be considered in order to perform a complete search.

U A01K 89/0155 · · · (using magnets)
N A01K 89/01556 · · · {Line tension responsive actuators}

WARNING
Groups A01K 89/01556 and A01K 89/01557 are incomplete pending reclassification of documents from group A01K 89/0155.
Groups A01K 89/0155, A01K 89/01556 and A01K 89/01557 should be considered in order to perform a complete search.

N A01K 89/01557 · · · {Centrifugal}

WARNING
Groups A01K 89/01556 and A01K 89/01557 are incomplete pending reclassification of documents from group A01K 89/0155.
Groups A01K 89/0155, A01K 89/01556 and A01K 89/01557 should be considered in order to perform a complete search.

C A01K 89/016 · · Fly reels {i.e. with a stub shaft support}

WARNING
Group A01K 89/016 is impacted by reclassification into group A01K 89/0162.
Groups A01K 89/016 and A01K 89/0162 should be considered in order to perform a complete search.

N A01K 89/0162 · · · {with a releasable latch to retain spool on shaft}

WARNING
Group A01K 89/0162 is incomplete pending reclassification of documents from group A01K 89/016.
Groups A01K 89/016 and A01K 89/0162 should be considered in order to perform a complete search.

U A01K 89/0165 · · for trolling
C A01K 89/017 · · motor-driven

WARNING
Group A01K 89/017 is impacted by reclassification into groups A01K 89/0171, A01K 89/0172, A01K 89/0173, and A01K 89/0174.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0171 · · · {Spring motors}

WARNING
Groups A01K 89/0171, A01K 89/0172, A01K 89/0173, and A01K 89/0174 are incomplete pending reclassification of documents from group A01K 89/017.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0172 · · · {actuated in response to pull on line}
N A01K 89/0173 · · · {with independent manual drive}
N A01K 89/0174 · · · {with spring chargers}
N A01K 89/0175 · · · {Axial unwinding}

WARNING
Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/017, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907.
WARNING

Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0176 · · · {with guide shiftable between wind and unwind positions}

N A01K 89/0178 · · · {with unwinding indicators, e.g. a bell or a flashing light}

WARNING

Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0179 · · · {Clicking indicators, e.g. flexible pawl and toothed member}

N A01K 89/018 · · · {Spring biased pawls}

N A01K 89/0181 · · · · {Plural spring sections}

N A01K 89/0182 · · {with line unwinding limiters}

WARNING

Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0183 · · {Drive mechanism details}
A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015. All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/0184 · · · {Multiple drive ratio}
N A01K 89/0185 · · · {Ratchet-type drive}
N A01K 89/0186 · · · {with disengageable positive drive components, e.g. a clutch}
N A01K 89/0187 · · · {having alternative yieldable mechanism}
N A01K 89/0188 · · · {Axially engaged}
N A01K 89/0189 · · · · {Coaxial of spool}
N A01K 89/01901 · · · {Reengageable responsive to drive rotation}
N A01K 89/01902 · · · {Gear pair}
N A01K 89/01903 · · · {with yieldable drive coupling, e.g. friction or fluid clutch}
N A01K 89/01904 · · · {adjustable by crank manipulation}
N A01K 89/01905 · · · · {adjustable within distinct ranges}
N A01K 89/01906 · · · {between drive shaft and crank}
N A01K 89/01907 · · · {between drive shaft and gear}
N A01K 89/01908 · · · · {Coaxial with spool}
N A01K 89/01909 · · · · {Axially applied}
N A01K 89/0191 · · · · · {by centre pin}
N A01K 89/01911 · · · {with feed roller}
N A01K 89/01912 · · · {with level winding}
N A01K 89/019125 · · · {Line shifts along a rotatable cam bar}
N A01K 89/01913 · · · {Line traction guide wheels}
N A01K 89/01914 · · · {Manually shifted guides}
N A01K 89/01915 · · · {the drive mechanism oscillating the guide}
N A01K 89/01916 · · · {the drive mechanism reciprocating the guide}
N A01K 89/01917 · · · · {Reversely threaded screw}
N A01K 89/01918 · · · · · {Guide shiftable between wind and unwind positions}
N A01K 89/01919 · · · · · {Guide having line removal opening}
N A01K 89/0192 · · · {Frame details}

WARNING
Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01928, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/01921  · · · {Frame disassembly features}
N A01K 89/01922  · · · {Hinged frame sections}
N A01K 89/01923  · · · {Rotated joints}
N A01K 89/01924  · · · {Threaded}
N A01K 89/01925  · · · {Reel supports, e.g. reel feet}
N A01K 89/01928  · · · {with line or water shields}
N A01K 89/01929  · · · {with lubrication features}
N A01K 89/0193  · · · {with bearing features}
N A01K 89/01931  · · {Spool or spool shaft details (spool details in reel with pick-up A01K 89/0111)}

WARNING
Groups A01K 89/0175, A01K 89/0176, A01K 89/0178, A01K 89/0179, A01K 89/018, A01K 89/0181, A01K 89/0182, A01K 89/0183, A01K 89/0184, A01K 89/0185, A01K 89/0186, A01K 89/0187, A01K 89/0188, A01K 89/0189, A01K 89/01901, A01K 89/01902, A01K 89/01903, A01K 89/01904, A01K 89/01905, A01K 89/01906, A01K 89/01907, A01K 89/01908, A01K 89/01909, A01K 89/0191, A01K 89/01911, A01K 89/01912, A01K 89/019125, A01K 89/01913, A01K 89/01914, A01K 89/01915, A01K 89/01916, A01K 89/01917, A01K 89/01918, A01K 89/01919, A01K 89/0192, A01K 89/01921, A01K 89/01922, A01K 89/01923, A01K 89/01924, A01K 89/01925, A01K 89/01926, A01K 89/01929, A01K 89/0193, A01K 89/01931 are incomplete pending reclassification of documents from group A01K 89/015.
All groups listed in this Warning should be considered in order to perform a complete search.

U A01K 89/02  · · Brake devices for reels
C A01K 89/027  · · with pick-up {, i.e. for reels with the guiding member rotating and the spool not rotating during normal retrieval of the line}

WARNING
Group A01K 89/027 is impacted by reclassification into groups A01K 89/028, A01K 89/029, and A01K 89/03.
All groups listed in this Warning should be considered in order to perform a complete search.

U A01K 89/0275  · · · {with closed face}
N A01K 89/028  · · · {Continuously applied (for closed face reels A01K 89/0275)}

WARNING
Groups A01K 89/028, A01K 89/029, and A01K 89/03 are incomplete pending reclassification of documents from group A01K 89/027.
All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/029  · · · {between spool shaft and frame}
N A01K 89/03  · · · {between spool and spool shaft}
C A01K 89/033  · · with [a] rotary drum {, i.e. for reels with a rotating spool (antibacklash devices A01K 89/0155)}

WARNING
Group A01K 89/033 is impacted by reclassification into groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05.
All groups listed in this Warning should be considered in order to perform a complete search.

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N A01K 89/045  · · · {Spool bearing brake}

WARNING
Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/046  · · · {Manual pressure control}

WARNING
Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/047  · · · {Radially applied}

N A01K 89/048  · · · · {Rolling contact}

N A01K 89/049  · · · · {Separable attachments}

N A01K 89/05  · · · {Brakes connected to the spool by one-way clutch}

WARNING
Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/051  · · · {Adjustable pressure pawls, e.g. braking clickers}

WARNING
Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

N A01K 89/052  · · · {Positive}

WARNING
Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.
All groups listed in this Warning should be considered in order to perform a complete search.

\[ \text{N}\ A01K 89/053 \quad \cdots \cdot \{\text{One-way}\} \]
\[ \text{N}\ A01K 89/054 \quad \cdots \cdot \cdot \{\text{with disabler}\} \]
\[ \text{N}\ A01K 89/055 \quad \cdots \cdot \cdot \cdot \{\text{Rotation responsive}\} \]
\[ \text{N}\ A01K 89/056 \quad \cdots \cdot \{\text{Radially engaged}\} \]

**WARNING**

Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

\[ \text{N}\ A01K 89/057 \quad \cdots \cdot \{\text{Axially engaged}\} \]

**WARNING**

Groups A01K 89/045, A01K 89/046, A01K 89/047, A01K 89/048, A01K 89/049, A01K 89/05, A01K 89/051, A01K 89/052, A01K 89/053, A01K 89/054, A01K 89/055, A01K 89/056, A01K 89/057, A01K 89/058 and A01K 89/059 are incomplete pending reclassification of documents from group A01K 89/033.

All groups listed in this Warning should be considered in order to perform a complete search.

\[ \text{N}\ A01K 89/058 \quad \cdots \cdot \{\text{Coaxial with spool}\} \]
\[ \text{N}\ A01K 89/059 \quad \cdots \cdot \{\text{on adjustable lever}\} \]
\[ \text{M}\ A01K 89/06 \quad \text{Reversible reels, i.e. with spool axis shiftable between winding and unwinding positions} \]
\[ \text{C}\ A01K 89/08 \quad \text{Pole-less fishing apparatus, i.e. hand-held reels} \]

**WARNING**

Group A01K 89/08 is impacted by reclassification into group A01K 89/081. Groups A01K 89/08 and A01K 89/081 should be considered in order to perform a complete search.

\[ \text{N}\ A01K 89/081 \quad \cdots \cdot \{\text{Axial unwinding}\} \]

**WARNING**

Group A01K 89/081 is incomplete pending reclassification of documents from group A01K 89/08. Groups A01K 89/08 and A01K 89/081 should be considered in order to perform a complete search.

**Project: N/A (A01N)**

**U A01N 3/00**

**Preservation of plants or parts thereof, e.g. inhibiting evaporation, improvement of the appearance of leaves (or protection against physical influences such as UV radiation using chemical compositions; Grafting wax) (preservation of foodstuffs A23; preservation or chemical ripening of fruit or vegetables A23B 7/00); ((protective coverings A01G 13/02)) Grafting wax**

\[ \text{A01N 3/04} \quad \text{Grafting-wax} \]

**NOTES**

1.
Attention is drawn to the definitions of groups of chemical elements following the title of section C.

In groups A01N 27/00 to A01N 65/00, in the absence of an indication to the contrary, classification is made in the last appropriate place for an active ingredient.

Where a compound is described as existing in tautomeric forms, it is classified as if existing in the form which is classified last in the system.

Compounds covered by different main groups according to alternatively specified parts of their formulae are classified in every one of the relevant main groups.

Salts formed between two or more organic compounds are classified as the compound providing the essential ion and it is also classified as the compound providing the other ion.

Salts or metal chelates of an organic compound are classified as that compound.

In this subclass, a foodstuff is not considered as an active ingredient.

Different materials applied in sequence, at different times, are considered as a mixture of all materials employed.

Synergistic or potentiated compositions are classified as if the synergist or potentiator were an active ingredient.

In groups A01N 25/00 to A01N 65/00, the symbol X means nitrogen, oxygen, sulfur or a halogen; Y means nitrogen, oxygen or sulfur. A dotted line between atoms indicates an optional bond, e.g. indicates one or two single bonds or a double bond.

2. In groups A01N 25/00 to A01N 65/00, it is required to use Combination Sets for classifying mixtures of (active or formulation-relevant) ingredients. Symbols relating to additional ingredients of mixtures or specific formulation types are added to the Combination Set of the main ingredient. The additional ingredient may be a further active ingredient (for example in case of synergistic mixtures) or may relate to a particular special formulation-ingredient (such as a surfactant or safener) or to a special formulation embodiment (like a wettable powder or microcapsule).

3. For compositions containing more than one known active ingredients (e.g. synergistic mixtures) the symbol A01N 2300/00 is additionally given to the symbol of the main ingredient.

A01N 43/00

Biocides, pest repellants or attractants, or plant growth regulators containing heterocyclic compounds (containing cyclic anhydrides, cyclic imides A01N 37/00; containing compounds of the formula containing only one heterocyclic ring, wherein m>=1 and n>=0 and is unsubstituted or alkylsubstituted pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine or a polymethyleneimine with four or more CH₂ groups, A01N 33/00 to A01N 41/12)

NOTES
1. In group A01N 43/00, the following terms or expressions are used with the meanings indicated:
• "Hetero ring" is a ring having at least one halogen nitrogen, oxygen or sulfur atom as a ring member.
• "Bridged" means the presence of at least one fusion other than ortho, peri and spiro.
• Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed.
• "Condensed ring system" is a ring system in which all rings are condensed among themselves.

2. In group A01N 43/00, the number of rings in a condensed system equals the number of scissions necessary to convert the ring system into one acyclic chain. The relevant rings in a condensed system are chosen according to the following criteria consecutively:
   i. lowest number of ring members,
   ii. highest number of hetero atoms as ring members.
   Ring members shared by two or more rings are regarded as being a member of each of these rings.

Project: N/A (A21C)

U A21C 3/00
A21C 3/06
Machines or apparatus for shaping batches of dough before sub-division
• Machines for coiling sheets of dough, e.g. for producing rolls, {e.g. crescent-rolls (as part of a machine for further moulding or forming A21C 7/00; with filling A21C 9/06)}

Project: N/A (A21D)

A21D 15/00
Preserving finished { or partly finished (par-baked) bakery products (refreshing A21D 17/00, packaging or wrapping bakery products B65B, B65D)}

Project: N/A (A22B)

U A22B 3/00
A22B 3/02
Slaughtering or stunning {{anaesthetising animals A61D 7/04; cutting in general B26}
• by means of bolts, e.g. slaughtering pistols, cartridges {{pistols F41C}}

U A22B 5/00
A22B 5/20
Accessories for use during or after slaughtering
• Splitting instruments {{cutting operations on carcasses other than splitting A22B 5/0017}}

Project: N/A (A22C)

U A22C 11/00
A22C 11/12
Sausage making {{chemical aspects A23L 1/31; Apparatus for handling or conveying sausage products during manufacture}
• Apparatus for tying sausage skins; { Clipping sausage skins (applying clips or binding material to package folds or closures, e.g. to twisted bag necks B65B 51/04, B65B 51/08)}

U A22C 17/00
A22C 17/14
Other devices for processing meat or bones
• Working-up animal intestines; { Treatment thereof for the manufacture of natural sausage casings (making artificial casings A22C 13/0003; chemical treatment of natural casings A22C 13/0026); Apparatus for cutting intestines; Machines for pulling intestines to pieces

A22C 25/00
Processing fish; {Curing of fish; Stunning of fish by electric current; Investigating fish by optical means (slaughtering fish A22B 3/08)}
A22C 25/08 · Holding, guiding, or conveying fish before, during or after its preparation
   (A22C 25/06 takes precedence); {Devices for sizing fish; Automatically
   adapting conveyors or processing machines to the measured size (transport in
   general B65G)}

Project: N/A (A23B)
U A23B 4/00 General methods for preserving meat, sausages, fish or fish products
U A23B 4/044 · Smoking; Smoking devices
   A23B 4/052 · · Smoke generators; {Smoking apparatus (A23B 4/056 takes precedence)}

Project: N/A (A23C)
U A23C 19/00 Cheese; Cheese preparations; Making thereof (cheese substitutes
   A23C 20/00; casein A23J 1/20)
U A23C 19/097 · Preservation
   A23C 19/10 · · Addition of preservatives {{enzymes or micro-organisms, see A23C 19/032,
   A23C 19/04, A23C 19/061 and A23C 19/063}}

Project: N/A (A23G)
U A23G 1/00 Cocoa; Cocoa products, e.g. chocolate; Substitutes therefor (kitchen
equipment for cocoa preparation A47J, e.g. apparatus for making beverages A47J 31/00)
   NOTE
   Attention is drawn to the internal note after the subclass title
U A23G 1/30 · Cocoa products, e.g. chocolate; Substitutes therefor
   A23G 1/56 · · making liquid products, e.g. for making chocolate milk {drinks and the
   products for their preparation, pastes for spreading, milk crumb, (A23G 1/305
   takes precedence)}
   NOTE
   Attention is drawn to the internal note after the subclass title
U A23G 9/00 Frozen sweets, e.g. ice confectionery, ice-cream; Mixtures therefor
U A23G 9/04 · Production of frozen sweets, e.g. ice-cream (packages B65D 85/78)
U A23G 9/22 · · Details, component parts or accessories of apparatus insofar as not peculiar
to a single one of the preceding groups
U A23G 9/28 · · · for portioning or dispensing
   A23G 9/287 · · · · {for dispensing bulk ice-cream; (ice cream scoops A47J 43/282)}

Project: N/A (A23K)
U A23K 1/00 Animal feeding-stuffs (detoxicating or removing bitter tastes from seeds,
e.g. lupin seeds for fodder or food A23L 1/211)
   A23K 1/16 · supplemented with accessory food factors; Salt blocks {{steroids, hormones or
   enzymes A23K 1/165; antibiotics A23K 1/17; inorganic additions A23K 1/175}}

Project: N/A (A43D)
U A43D 95/00 Shoe-finishing machines
   A43D 95/14 · incorporating marking, printing, or embossing apparatus (ornamentation of
   shoe part blanks A43D 8/16; printing per se, stamping per se B41)
### Project: N/A (A44B)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U A44B 1/00</td>
<td><strong>Buttons</strong> (setting on garments A41H 37/10; setting on footwear A43D 100/08; making buttons: see the relevant groups in the classes for making articles from particular materials)</td>
</tr>
<tr>
<td>U A44B 1/08</td>
<td>· Constructional characteristics</td>
</tr>
<tr>
<td></td>
<td>· · with replaceable (or protective) coverings (removable fabric coverings A44B 1/123; sleeve-links concealing a sewed-on button A44B 5/007)</td>
</tr>
<tr>
<td>U A44B 1/18</td>
<td>· adapted for special ways of fastening</td>
</tr>
<tr>
<td></td>
<td>· · attached by thread visible to the front ((A44B 1/185 takes precedence))</td>
</tr>
<tr>
<td>U A44B 1/20</td>
<td>· · attached by thread not visible to the front ((A44B 1/185 takes precedence))</td>
</tr>
<tr>
<td>U A44B 11/00</td>
<td><strong>Buckles; Similar fasteners for interconnecting straps or the like, e.g. for safety belts</strong></td>
</tr>
<tr>
<td>U A44B 11/25</td>
<td>· with two or more separable parts</td>
</tr>
<tr>
<td></td>
<td>· · with push-button fastenings ((A44B 11/2507 takes precedence; press-button fasteners A44B 17/00))</td>
</tr>
<tr>
<td></td>
<td>· · with hooks engaging end-pieces on the strap ((A44B 11/2503 takes precedence))</td>
</tr>
<tr>
<td>U A44B 19/00</td>
<td><strong>Slide fasteners</strong></td>
</tr>
<tr>
<td>U A44B 19/10</td>
<td>· with a one-piece interlocking member on each stringer tape</td>
</tr>
<tr>
<td></td>
<td>· · interlocking member having uniform section throughout the length of the stringer ((for sacks or bags B65D 33/2508))</td>
</tr>
</tbody>
</table>

### Project: N/A (A46B)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U A46B 7/00</td>
<td><strong>Bristle carriers arranged in the brush body</strong></td>
</tr>
<tr>
<td></td>
<td>· movably during use, {i.e. the normal brushing action causing movement (driven brush bodies A46B 13/00)}</td>
</tr>
<tr>
<td>U A46B 11/00</td>
<td>**Brushes with reservoir or other means for applying substances, e.g. paints, pastes, water (driven brush bodies A46B 13/00; { massage apparatus with liquid delivery A61H 7/002, A61H 2201/105); applying liquids or other fluent materials to surfaces by liquid carrying members in general, e.g. by pads B05C 1/00, B05D 1/28}</td>
</tr>
<tr>
<td></td>
<td>· connected to supply pipe (or to other external supply means (A46B 11/0003 and A46B 11/0006 take precedence))</td>
</tr>
</tbody>
</table>

### Project: N/A (A47C)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A47C 17/00 - A47C 31/00</td>
<td><strong>Sofas; Beds</strong></td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>In groups A47C 17/00 to A47C 27/00, the following terms or expressions are used with the meaning indicated:</td>
</tr>
<tr>
<td></td>
<td>· &quot;bedstead&quot; is used only for the frame of a bed;</td>
</tr>
<tr>
<td></td>
<td>· &quot;bed&quot; includes bedsteads combined with spring mattresses, stuffed mattresses, or similar means to enable the lying of persons thereon;</td>
</tr>
<tr>
<td></td>
<td>· &quot;spring mattresses&quot; do not include any stuffed material;</td>
</tr>
<tr>
<td></td>
<td>· &quot;stuffed mattresses&quot; may include metal springs.</td>
</tr>
</tbody>
</table>

### Project: N/A (A47D)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U A47D 13/00</td>
<td><strong>Other nursery furniture (auxiliary or portable toilet seats for children A47K 13/06)</strong></td>
</tr>
</tbody>
</table>
A47D 13/08
· Devices for use in guiding or supporting children, e.g., safety harness, (feeding cushions (harnesses for helping babies to walk A47D 13/046; restraining devices in chairs A47D 15/006; restraining devices in beds, playpens or cradles A47D 15/008))

Project: N/A (A47F)

U A47F 1/00
Racks for dispensing merchandise (racks in general A47B; storing means for workshops B25H); Containers for dispensing merchandise (show or display aspects A47F 3/00; for workshop fittings B25H 3/00; containers in general B65D; (for liquids B67D); coin-freed dispensers G07F)

A47F 1/04
· (Racks or) containers with arrangements for dispensing articles, (e.g. by means of gravity or springs (for wallpaper or textile materials in rolls or rolled tapes A47F 7/17; paper-bag dispensers for check-out counters A47F 9/042; for cigarette papers A24F 17/00; for hand towels or toilet paper A47K; for bandages A61F; for playing cards A63F; for pills, needles B65D 83/00; for web-like material with cutting devices B65H 35/00; photographic paper G03B))

U A47F 3/00
Show cases or show cabinets

A47F 3/12
· Clamps or other devices for supporting, fastening, or connecting glass plates, (panels or the like (surrounds or partitioning for display trays or shelves A47F 5/005))

U A47F 5/00
Show stands, hangers, or shelves characterised by their constructional features

A47F 5/0018
· (Display racks with shelves or receptables (racks per se A47B; storage devices for warehouses B65G 1/02))

U A47F 7/00
Show stands, hangers, or shelves, adapted for particular articles or materials ((A47F 5/0006 takes precedence))

A47F 7/14
· for pictures, e.g. in combination with books or seed-bags; (for cards, magazines, newspapers, books or booklike articles, e.g. audio/video cassettes (racks or containers with dispensing arrangements A47F 1/04; for cardboard panels, e.g. posters, A47F 7/0042))

A47F 7/28
· for containers, e.g. flasks, bottles, (tins, milk packs (racks or containers with dispensing arrangements A47F 1/04; for lipsticks or markers A47F 7/0021; for audio/video cassettes or booklike articles A47F 7/14))

Project: N/A (A47K)

U A47K 3/00
Baths; Douches; Appurtenances therefor (for curative purposes A61H, A61M, e.g. bathing devices for special therapeutic or hygienic purposes A61H 33/00; (spray heads B05B; devices for suspending or supporting the supply pipe or supply hose of a shower bath E03C 1/06; heated bath tubs F24H 1/0072))

A47K 3/10
· Wave-producers or the like, (e.g. with devices for admitting gas, e.g. air, in the bath-water (baths with gas-containing liquids A61H 33/02; for swimming-pools E04H 4/0006))

U A47K 3/28
· Showers (or bathing douches)(combined with baths A47K 3/20; nozzles, spray heads B05B 1/00; (means for suspending or supporting the supply pipe or supply hose E03C 1/06))

A47K 3/30
· Screens or (collapsible) cabinets (for showers or baths (A47K 3/283 takes precedence))

U A47K 5/00
Holders or dispensers for soap, toothpaste, or the like (specially adapted for shaving soap or cosmetics A45D 33/00 to A45D 40/00)
· for both soap and toothpaste or the like; in combination with holders for
drinking glasses, toothbrushes, or the like; (Toothpaste dispensers; Dental
care centers (soap dispensers per se A47K 5/06; dispensers using pliable
containers with auxiliary devices for expelling contents B65D 35/28))

U A47K 10/00
Body-drying implements; Toilet paper; Holders therefor

U A47K 10/24
· Towel dispensers, {e.g. for piled-up or folded textile towels}; Toilet-paper
dispensers (sheet or web dispensers in general B65H; {paper dispensers for
publicity purposes G09F 21/22, G09F 23/10}); Dispensers for piled-up or folded
textile towels provided or not with devices for taking-up soiled towels as far as
not mechanically driven

U A47K 10/32
· · Dispensers for paper towels or toilet-paper

U A47K 10/34
· · · dispensing from a web, e.g. with mechanical dispensing means
A47K 10/38
· · · · the web being rolled up (with or without tearing edge (A47K 10/36 and
A47K 10/46 take precedence)}

U A47K 11/00
Closets without flushing (closets with recirculation of bowl-cleaning
fluid E03D 5/016); Urinals without flushing (for vehicles in general B60R;
closets for railway-cars B61D; for ships B63B; for aircraft B64D; urinals
with flushing arrangements E03D 13/00); Chamber pots; Chairs with toilet
conveniences or specially adapted for use with toilets
A47K 11/10
· Hand tools for cleaning the toilet bowl, {seat or cover, e.g. toilet
brushes (cleaning devices without flushing A47K 17/00; mechanical devices for
cleaning toilet bowls E03D)}

Project: N/A (A61B)

U A61B 1/00
Instruments for performing medical examinations of the interior of
cavities or tubes of the body by visual or photographic inspection, e.g.
endoscopes (examination of body cavities or body tracts using ultrasonic,
sonic or infrasonic waves A61B 8/12; instruments, e.g. endoscopes,
for taking a cell sample A61B 10/00; endoscopic cutting instruments
A61B 17/32; surgical instruments using a laser beam being directed
along or through a flexible conduit A61B 18/22; technical endoscopes
G02B 23/24); Illuminating arrangements therefor (for the eyes A61B 3/00)
A61B 1/04
· combined with photographic or television appliances ((camera adapters
G03B 17/48))

U A61B 3/00
Apparatus for testing the eyes; Instruments for examining the eyes (eye
inspection using ultrasonic, sonic or infrasonic waves A61B 8/10; devices
for treatment of the eyes A61F 9/00; exercisers for the eyes A61H 5/00;
optical systems in general G02B)
U A61B 3/10
· Objective types, i.e. instruments for examining the eyes independent of the
patients` perceptions or reactions
A61B 3/14
· · Arrangements specially adapted for eye photography ((apparatus or
arrangements for taking photographs per se G03B))

A61B 5/00
Detecting, measuring or recording for diagnostic purposes (radiation
diagnosis A61B 6/00; diagnosis by ultrasonic, sonic or infrasonic waves
A61B 8/00); Identification of persons ((measuring or recording in general
subclasses of G01; medical informatics G06F 19/30))

WARNING
Groups A61B 5/40 - A61B 5/748 do not correspond to former or present IPC
groups. Concordance CPC : IPC for these groups is as follows: A61B 5/40
: A61B 5/00A61B 5/41 : A61B 5/00A61B 5/42 : A61B 5/00A61B 5/43
: A61B 5/00A61B 5/44 : A61B 5/00A61B 5/45 : A61B 5/00A61B 5/48
Detecting, measuring or recording pulse, heart rate, blood pressure or blood flow; Combined pulse/heart-rate/blood pressure determination; Evaluating a cardiovascular condition not otherwise provided for, e.g. using combinations of techniques provided for in this group with electrocardiography or electroauscultation; Heart catheters for measuring blood pressure

Measuring blood flow ((A61B 3/1233, A61B 3/1241 take precedence))

Measuring or recording blood output from the heart, e.g. minute volume ((A61B 8/065 takes precedence))

Detecting, measuring or recording fluid pressure within the body other than blood pressure, e.g. cerebral pressure; Measuring pressure in body tissues or organs (A61B 5/205 takes precedence)

Detecting, measuring or recording bioelectric signals of the body or parts thereof

Electrocardiography, i.e. ECG

Displays specially adapted therefor ((arrangements for displaying electric variables or waveforms, e.g. cathode-ray oscilloscopes, G01R 13/00))

Electroencephalography ((devices for psychotechnics A61B 5/16))

Detecting the frequency distribution of signals ((analysing frequency spectra in general G01R 23/00))

using biofeedback ((biofeedback per se A61B 5/486))

Electro-oculography, e.g. detecting nystagmus ((measuring or inducing nystagmus A61B 5/4863))

Detecting, measuring or recording devices for evaluating the respiratory organs (A61B 5/0205 takes precedence)

Measuring breath flow

using an element rotated by the flow ((toys actuated by air current A63H 33/40))

Detecting, measuring or recording devices for testing the shape, pattern, (colour,)size or movement of the body or parts thereof, for diagnostic purposes (A61B 5/08 takes precedence; measuring aids for tailors A41H 1/00; measuring instruments specially adapted for dentistry A61C 19/04)

Detecting movement of the entire body or parts thereof, e.g. head or hand tremor, mobility of a limb (for measuring pulse A61B 5/02) ((A61B 5/1038 takes precedence; motion detection to correct for motion artifacts in physiological signals A61B 5/721))

using optical sensors, e.g. spectral photometrical oximeters

Groups A61B 5/14535, A61B 5/14539 and A61B 5/14546 are not complete pending a reorganisation; see also groups A61B 5/145

using optical sensors, e.g. spectral photometrical oximeters
A61B 5/1459  · · · invasive, e.g. introduced into the body by a catheter ((A61B 5/1464 takes precedence))

A61B 5/1468  · · using chemical or electrochemical methods, e.g. by polarographic means ((A61B 5/1486 takes precedence))

A61B 5/1473  · · · invasive, e.g. introduced into the body by a catheter ((A61B 5/1482 takes precedence))

U A61B 5/15  · Devices for taking samples of blood (hypodermic syringes A61M 5/178)

NOTE
In these subgroups, the following terms are used with the meaning indicated:
- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
- "piercing or lancing device" means device ready to be used for lancing;
- "driving device" means device for driving a piercing element e.g. spring

WARNING
This group and its subgroups are not complete pending a reorganisation. See also A61B 5/14, A61B 5/1405 and subgroups

U A61B 5/151  · · {Devices}specially adapted for taking samples of capillary blood, e.g. by lancets(, needles or blades)

A61B 5/15146  · · · {Devices loaded with multiple lancets simultaneously, e.g. for serial firing without reloading, for example by use of stocking means. (multiple simultaneous cutting or piercing A61B 5/150977)}

A61B 5/155  · · {Devices}specially adapted for continuous or multiple sampling, e.g. at predetermined intervals ((devices loaded with multiple lancets simultaneously A61B 5/15146))

A61B 5/20  · for measuring urological functions {restricted to the evaluation of the urinary system (A61B 5/4375 takes precedence)}

A61B 5/74  · {Details of notification to user or communication with user or patient (indicating measured values G01D 7/00); user input means (input or output arrangements for computers G06F 3/00)}

WARNING
Group A61B 5/74 and subgroups are not complete pending a reorganisation; see also other subgroups of A61B 5/00

U A61B 6/00  Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment (analysis of materials using radiation G01N 23/00, detecting hidden objects by radiation G01V 5/0008, radiodiagnostic or X-ray contrast preparations A61K 49/00; radiation therapy per se A61N 5/00; instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting G01T 1/161; apparatus for taking X-ray photographs G03B 42/02; X-ray photographic processes G03C 5/16; irradiation devices G21K; X-ray apparatus or circuits therefor H05G 1/00)

WARNING

A61B 6/00  · Diaphragms (for particular diagnostic applications, e.g. tomography, i.e. not of general applicability (diaphragms, e.g. variable, or collimators in general G21K 1/02))
Instruments for auscultation

Stethoscopes {(acoustic details thereof G10K 11/00)}

Surgical instruments, devices or methods, e.g. tourniquets (A61B 18/00 takes precedence; contraceptive devices, pessaries, or applicators therefor A61F 6/00 ; eye surgery A61F 9/007 ; ear surgery A61F 11/00)

for applying or removing wound clamps, (e.g. containing only one clamp or staple (A61B 17/076 takes precedence; containing multiple wound clamps A61B 17/068)); Wound clamp magazines (containers, packaging elements or packages specially adapted for particular articles or with special means for dispensing contents B65D 83/00 , B65D 85/00)

for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord (specially adapted for vas deferens or fallopian tubes A61F 6/20 ; materials for ligaturing blood vessels A61L 17/00)

Clamps or clips, (e.g. for the umbilical cord (for the vas deferens A61F 6/206))

Tourniquets {(sphygometers A61B 5/02)}

Surgical saws {(A61B 17/1637 takes precedence ) ; tooth saws A61C 3/12 ; ( saws for jaw bone A61C 8/0089 ; cast-cutting saws A61F 15/02); (Accessories therefor)}

WARNING
New subgroups of A61B 17/14 are not complete, pending a reorganisation. See provisionally also group A61B 17/14

Guides therefor {(arrangements for guiding straight saw blades in general B23D 51/025)}

{Bone cutting, breaking or removal means other than saws, e.g.)Osteoclasts; Drills or chisels for bones; Trepans {(arthroscopic bone cutters A61B 17/320016 ; dental implant drills potentially for other surgical use A61C 8/0089 ; bone grinders A61F 2/4644 , A22C 17/06 ; A61B 17/1662 takes precedence over all other subgroups except A61B 17/17)}

WARNING
New groups A61B 17/1679 , A61B 17/1682 , A61B 17/1684 , A61B 17/1686 , A61B 17/1688 , A61B 17/1691 and A61B 17/1693 are not complete, pending a reorganisation. See provisionally also group A61B 17/16 and subgroups

Implements for squeezing-off ulcers or the like on {the inside of}inner organs of the body; Implements for scraping-out cavities of body organs, e.g. bones; Calculus removers; Calculus smashing apparatus; {Apparatus for removing obstructions in blood vessels, not otherwise provided for (dilators A61M 29/00)}

Gripping devices in the form of loops or baskets {for gripping calculi or similar types of obstructions (surgical snare instruments A61B 17/32056)}

Surgical cutting instruments {(A61B 18/042 takes precedence; suture cutters A61B 17/0467 ; instruments for ligaturing or cutting A61B 17/128 ; instruments for rupturing the amniotic membrane A61B 17/4208 ; specially adapted knives for eye surgery A61F 9/0133)}

Excision instruments

Atherectomy devices {working by cutting or abrading; Similar devices specially adapted for non-vascular obstructions (A61B 17/32037 takes precedence; endoscopic cutting instruments A61B 17/320016)}

Incision instruments

Surgical scalpels, knives; Accessories therefor

Packages or dispensers for scalpel blades {(for sharps A61B 19/0262)}
A61B 17/3217 Devices for removing or collecting used scalpel blades {(for sharps A61B 19/0288)}

A61B 17/34 Trocars; Puncturing needles {(pointed biopsy instruments A61B 10/0233 ; devices for piercing the ear-lobes A44C 7/001 ; seals or hemostasis valves A61M 39/06)}

A61B 17/54 Chiropodists’ instruments, {e.g. pedicure (chiropractic devices A61H 1/008)}

A61B 17/56 Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor {(orthopaedic methods or devices for non-surgical treatment of bones or joints A61F 5/00)}

NOTES
1. Documents concerning exclusively surgical methods are classified only in this group.
2. Surgical instruments or devices are classified only in the relevant subgroups

U A61B 17/58 for osteosynthesis, e.g. bone plates, screws, {setting implements} or the like (A61B 17/14 , A61B 17/16 take precedence; { splints A61B 5/01 ; traction bandages A61F 13/10})

U A61B 17/60 for external osteosynthesis, e.g. distractors, contractors

A61B 17/64 Devices extending alongside the bones to be positioned {(not used, see subgroups and A61B 17/60)}

A61B 17/68 Internal fixation devices, {including fasteners and spinal fixators, even if a part thereof projects from the skin (bone staples A61B 17/0642 ; dental regeneration membranes A61C 8/0096)}

WARNING
Subgroups A61B 17/686 and A61B 17/688 are not complete pending a reorganisation. See also A61B 17/68 , A61B 17/683 and A61B 17/86

A61B 17/72 Intramedullary {pins, nails or other} devices {(A61B 17/744 takes precedence)}

A61B 17/74 Devices for the head {or neck or trochanter} of the femur {(trochanteric devices connected to the proximal part of an endoprosthetic femoral shaft A61F 2/3073 ; endoprosthetic internal fixation devices for the head or neck of the femur A61F 2/3601)}

A61B 17/80 Cortical plates {i.e. bone plates; Instruments for holding or positioning cortical plates, or for compressing bone attached to them (A61B 17/70 takes precedence)}

A61B 17/82 for bone cerclage {(apparatus for manipulating wires or straps A61B 17/8861 ; wires, bands or straps other than cerclage A61B 17/842)}

U A61B 17/84 Fasteners therefor {or fasteners being internal fixation devices}

A61B 17/86 Threading wires, pins or screws; {Nuts therefor (A61B 17/72 , A61B 17/74 , A61F 2/4455 take precedence)}

WARNING
Subgroups A61B 17/861 , A61B 17/865, A61B 17/8665, A61B 17/869 and A61B 17/8695 are not complete pending a reorganisation. See also A61B 17/68 , A61B 17/86 , A61B 17/8605 and A61B 19/026

U A61B 17/88 Osteosynthesis instruments; Methods or means for implanting or extracting internal {or external} fixation devices

A61B 17/92 Impactors or extractors, e.g. for removing intramedullary devices {(insertion or extraction of artificial joints A61F 2/4603)}
U A61B 19/00 Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups A61B 1/00 to A61B 17/00, e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors (surgeon’s or patient’s gowns or dresses, surgical masks A41D 13/00); devices for carrying-off, for treatment of, or for carrying-over, body liquids A61M 1/00

WARNING
Groups A61B 19/20 - A61B 19/56 do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows: - A61B 19/20 - A61B 19/56 : A61B 19/00

A61B 19/02
• Protective casings or covers for appliances or instruments, e.g. boxes or sterile covers; Instrument tables or cupboards; Doctors’ bags (cleaning devices for surgical instruments A61B 19/34; instrument-protective drapes A61B 19/081; for sterilising articles A61L 2/00; for cleaning for sterilising hypodermic or infusion needles or syringes A61M 5/001; for preservation of living parts of the human or animal body A01N 1/02))

U A61B 19/08
• Surgical drapes (bandages, dressings or absorbent pads A61F 13/00)

A61B 19/10
• with means to retain or hold surgical implements (holders for articles A61B 19/256)

A61B 19/12
• tubular, e.g. for arms or legs (A61B 19/087 takes precedence)

U A61B 19/20
• (for stereotaxic surgery (using radio-opaque markers A61B 19/54))

A61B 19/203
• (Fixators for body parts, e.g. head fixators, skull clamps or bite blocks (tables with compression means for mammography A61B 6/0414; tables with patient immobilising means for radiation diagnosis A61B 6/0421); Constructional details thereof, e.g. fixating pins (bone screws or pins A61B 17/86))

Project: N/A (A61D)
A61D 17/00 Devices for indicating trouble during labour of animals; (Methods or instruments for detecting pregnancy-related states of animals (monitoring or measuring activity of animals A01K 29/005))

Project: N/A (A61F)
U A61F 2/00 Filters implantable into blood vessels; Prostheses, i.e. artificial substitutes or replacements for parts of the body; Appliances for connecting them with the body; Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (as cosmetic articles, see the relevant subclasses, e.g. wigs, hair pieces, A41G 3/00, A41G 5/00, artificial nails A45D 31/00; dental prostheses A61C 13/00; materials for prostheses A61L 27/00; artificial hearts A61M 1/10; artificial kidneys A61M 1/14)

WARNING
Groups A61F 2/07, A61F 2/844 - A61F 2/97 correspond to IPC2013.01

U A61F 2/02
• Prostheses implantable into the body (closure means for urethra or rectum or for artificial body openings therefor A61F 2/0004)

U A61F 2/14
• Eye parts, e.g. lenses, corneal implants; (Implanting instruments specially adapted therefor); Artificial eyes

U A61F 2/16
• Intraocular lenses

WARNING
All groups listed should be considered in order to perform a complete search.

A61F 2002/1681  · · ·  (having supporting structure for lens, e.g. haptics)

WARNING


U A61F 2/50  ·  Prostheses not implantable in the body {(closure means for urethra or rectum or for artificial body openings therefor A61F 2/0004)}

U A61F 2/68  ·  Operating or control means

U A61F 2/70  · · electrical {(not used, see A61F 2/68 and A61F 2/72)}

A61F 2002/705  · · ·  (Electromagnetic data transfer (for implantable prostheses A61F 2/027 A61F 2250/0002))

U A61F 5/00  Orthopaedic methods or devices for non-surgical treatment of bones or joints (surgical instruments or methods for treatment of bones or joints, devices specially adapted therefor A61B 17/56); Nursing devices; {Anti-rape devices}(bandages, dressings or absorbent pads A61F 13/00)

U A61F 5/44  ·  Devices worn by the patient for reception of urine, faeces, catamenial or other discharge; {Portable urination aids}(absorbent pads, e.g. sanitary towels, A61F 13/15; drainage appliances for wounds A61M 27/00; {emptying devices for urine bags B65B 69/0016}); Colostomy devices (adhesives for colostomy devices A61L 24/00; materials for colostomy devices A61L 28/00)

U A61F 5/4404  ·  {Details or parts}

A61F 5/4405  · ·  (Valves or valve arrangements specially adapted therefor (A61F 5/441 takes precedence); Fluid inlets or outlets (A61F 5/4407 takes precedence))

A61F 5/443  · ·  having {adhesive seals for securing to the body, e.g. of} hydrocolloid type, e.g. gels, starches, karaya gums {(adhesives or sealing pads therefor A61L 24/00)}

U A61F 9/00  Method or devices for treatment of the eyes; Devices for putting-in contact lenses; Devices to correct squinting; Apparatus to guide the blind; Protective devices for the eyes, carried on the body or in the hand (caps with means for protecting the eyes A42B 1/06; visors for helmets A42B 3/22; {retractors A61B 17/02; manipulators specially adapted for use in surgery A61B 19/22); appliances to aid invalids to move about A61H 3/00; {exercisers for the eyes A61H 5/00}; eye baths A61H 35/02; sunglasses or goggles having the same features as spectacles G02C)

U A61F 9/007  ·  Methods or devices for eye surgery

U A61F 9/008  ·  using laser

A61F 9/009  · · ·  Auxiliary devices making contact with the eye-ball and coupling in laser light, (e.g. goniolenses (apparatus for eye examination A61B 3/0008))

A61F 9/04  ·  Eye-masks; {Devices to be worn on the face, not intended for looking through; Eye-pads for sunbathing (eye-bandages A61F 13/12; protective face-masks A41D 13/11; protectors for shampooing A45D)}

A61F 9/08  ·  Devices or methods enabling eye-patients to replace direct visual perception by another kind of perception {({walking or guiding aids for blinds A61H 3/06; teaching or communicating with blinds G09B 21/00 promoting of eye function by stimulation with electric currents using contact electrodes A61N 1/36046)}

25
Bandages or dressings (suspending bandages A61F 5/40; { contact-avoiding wound protectors A61F 15/008; bandages or dressings with incorporated medicaments A61L 15/44, A61M 35/006; radioactive dressings A61N 5/1029}); Absorbent pads (chemical aspects of, or use of materials for, bandages, dressings or absorbent pads A61L 15/00; { absorbent pads for tracheostomy A61M 16/047})

Absorbent pads, e.g. sanitary towels, swabs or tampons for external or internal application to the body (non-absorbent catamenial receptacles A61F); Supporting or fastening means therefor; Tampon applicators

 characterised by the shape (cup-shaped type tampons A61F 13/24)

Absorbent articles specially adapted to be worn around the waist, e.g. diapers

adjustable (by adding or removing material e.g. umbilical cord arrangements (adjustable by the fastening A61F 13/5638, A61F 13/5655))

Stretchers

with facilities for picking up patients or disabled persons, e.g. break-away type or using endless belts {{devices in general for lifting disabled persons A61G 7/10}}

Supports for stretchers, e.g. to be placed in or on vehicles {{A61G 1/0293 takes precedence; supports fixed to a vehicle A61G 3/02 - A61G 3/08}}

Beds specially adapted for nursing; Devices for lifting patients or disabled persons (equipment for beds, treatment tables, floor frames or the like for extending or stretching A61F 5/045 {takes precedence} ; stretchers with facilities for picking up patients or disabled persons A61G 1/003)

having adjustable mattress frame

Combinations of adjustments mentioned in the following subgroups are classified in group A61G 7/002

tiltable around transverse horizontal axis, e.g. for Trendelenburg position {{rocking beds for physical therapy A61H 1/003; hanging patient inclined downwardly for drawing him out A61H 2203/0493}}

Beds for special sanitary purposes, {e.g. for giving enemas, irrigations, flushings (A61G 7/02 takes precedence; means for bathing bed-ridden persons A61G 7/0005)}

Parts, details or accessories of beds (devices for prevention against falling out A47C 21/08, A47D 7/00; { mattresses A47C 27/00})

Arrangements for preventing bed-sores or for supporting patients with burns, e.g. mattresses specially adapted therefor {{ventilation openings in mattresses A47C 21/042; pneumatic or hydraulic mattresses A47C 27/08}}

Rests specially adapted therefor

for the head or torso, e.g. special back-rests {{pillows in general A47G 9/10}}
Bed-pans, urinals or other sanitary devices for bed-ridden persons; Cleaning devices therefor, e.g. combined with toilet-urinals (urinals worn by the patient A61F 5/44)

- Cleaning devices {(washing and rinsing machines for crockery and tableware A47L 15/00)}

Operating tables; Auxiliary appliances therefor (illumination of operating tables F21L, F21S or F21V; adjustability of tables in general A47B 9/00; tables for radiation diagnosis A61B 6/04, drainage or irrigation pans, bags, or attachments A61G 7/02, A61G 7/0503)

Parts, details or accessories (surgical drape sheets A61B 19/08)

Parts, details or accessories (A61G 15/14 takes precedence; dental instruments A61C)

- Rests specially adapted therefor, e.g. for the head or feet {(A61G 15/105 takes precedence)}

Pneumatic or hydraulic massage, {e.g. sprays (A61H 13/00 takes precedence; underwater massage, spraying systems acting on a body or body part immersed in water A61H 33/00, A61H 35/00; brushes with fluid supply A46B 11/00; nozzles per se B05B)}

Massage for the genitals; { Devices for improving sexual intercourse (penis erection devices A61F 5/41; vibration or percussion related aspects A61H 23/00)}

WARNING
Groups A61H 19/30 to A61H 19/50 do not correspond to former or current IPC groups. Concordance CPC:IPC for these groups is as follows: A61H 19/30 to A61H 19/50: A61H 19/00

Percussion or vibration massage, e.g. using supersonic vibration; Suction-vibration massage; Massage with moving diaphragms {(apparatus for passive exercising A61H 1/00; generating or transmitting mechanical vibrations in general B06B)}

Hand percussion {, i.e. Hand driven (Chiropractic devices, A61H 1/008, A61H 1/006)}

Containers specially adapted for medical or pharmaceutical purposes (capsules or the like for oral use A61J 3/07; boxes for medical appliances, doctors' bags A61B 19/02; antithrombogenic treatment of articles for conditioning blood A61L 33/00; devices for introducing media into or onto the body A61M; containers for radioactive substances G21F 5/00)

for collecting, storing or administering blood, plasma or medical fluids {(multiple bags systems for separating or storing blood components A61M 1/0209); Infusion or perfusion containers}
Details: {e.g. inlet or outlet ports; provisions for hanging; or shape retaining means}; Accessories therefor, {e.g. connections of tubings inlets or outlets, valves, filters or caps; (plugs or stoppers B65D 51/00) (A61J 7/00 takes precedence; (plugs or stoppers B65D 51/00; openers B65D, B67B 7/00)}

**WARNING**
Group A61J 1/14 is impacted by reclassification into group A61J 1/1468. Groups A61J 1/14 and A61J 1/1468 should be considered in order to perform a complete search.

Containers with closing means, e.g. caps (plugs for containers B65D 51/00)

**WARNING**
Group A61J 1/1412 is impacted by reclassification into groups A61J 1/1418 - A61J 1/1431. Groups A61J 1/1412 and A61J 1/1418 - A61J 1/1431 should be considered in order to perform a complete search.

Threaded type

**WARNING**
Groups A61J 1/1418 - A61J 1/1431 are incomplete pending reclassification of documents from group A61J 1/1412. Groups A61J 1/1412, A61J 1/1418 - A61J 1/1431 should be considered in order to perform a complete search.

Snap-fit type

**WARNING**
Group(s) A61J 1/1418 - A61J 1/1431 is/are incomplete pending reclassification of documents from group(s) A61J 1/1412. Groups A61J 1/1412, A61J 1/1418 - A61J 1/1431 should be considered in order to perform a complete search.

Permanent type, e.g. welded or glued

**WARNING**
Groups A61J 1/1418 - A61J 1/1431 are incomplete pending reclassification of documents from group A61J 1/1412. Groups A61J 1/1412, A61J 1/1418 - A61J 1/1431 should be considered in order to perform a complete search.

Containers with means for dispensing liquid medicaments in a filtered or sterile way, e.g. with bacterial filters

**WARNING**
Groups A61J 1/1443 is impacted by reclassification into groups A61J 1/145 - A61J 1/1456. Groups A61J 1/1443 and A61J 1/145 - A61J 1/1456 should be considered in order to perform a complete search.

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<tbody>
<tr>
<td><strong>A61J 1/145</strong></td>
<td>· · · (using air filters)</td>
</tr>
<tr>
<td><strong>WARNING</strong></td>
<td>Groups A61J 1/145- A61J 1/1456 are incomplete pending reclassification of documents from groups A61J 1/1443. Groups A61J 1/1443, A61J 1/145 - A61J 1/1456 should be considered in order to perform a complete search.</td>
</tr>
</tbody>
</table>

| **A61J 2001/1456**     | · · · (using liquid filters) |
| **A61J 1/1456**        | · · · (using liquid filters) |
| **WARNING**            | Groups A61J 1/145- A61J 1/1456 are incomplete pending reclassification of documents from groups A61J 1/1443. Groups A61J 1/1443, A61J 1/145 - A61J 1/1456 should be considered in order to perform a complete search. |

| **A61J 1/1462**        | · · · (Containers with provisions for hanging, e.g. integral adaptations of the container (accessories for hanging the container A61J 1/16, A61M 5/1414)) |
| **A61J 2001/1468**     | · · · (Containers with specific material properties) |
| **A61J 1/1468**        | · · · (Containers characterised by specific material properties) |
| **WARNING**            | Group A61J 1/1468 is incomplete pending reclassification of documents from group A61J 1/14. Groups A61J 1/14 and A61J 1/1468 should be considered in order to perform a complete search. |

| **A61J 1/1475**        | · · · (Inlet or outlet ports) |
| **WARNING**            | Group A61J 1/1475 is impacted by reclassification into groups A61J 1/1481 - A61J 1/1487. Groups A61J 1/1475 and A61J 1/1481 - A61J 1/1487 should be considered in order to perform a complete search. |

| **A61J 2001/1481**     | · · · (with connection retaining means, e.g. thread or snap-fit) |
| **A61J 1/1481**        | · · · (with connection retaining means, e.g. thread or snap-fit) |
| **WARNING**            | Groups A61J 1/1481- A61J 1/1487 are incomplete pending reclassification of documents from group A61J 1/1475. Groups A61J 1/1475, A61J 1/1481 - A61J 1/1487 should be considered in order to perform a complete search. |

| **A61J 2001/1487**     | · · · (with friction fit, e.g. connecting tubes directly to a protruding port) |
| **A61J 1/1487**        | · · · (with friction fit, e.g. connecting tubes directly to a protruding port) |
| **WARNING**            | Groups A61J 1/1481- A61J 1/1487 are incomplete pending reclassification of documents from groups A61J 1/1475. Groups A61J 1/1475, A61J 1/1481 - A61J 1/1487 should be considered in order to perform a complete search. |

| **A61J 1/20**          | · · · Arrangements for transferring (or mixing) fluids, e.g. from vial to syringe (containers in general with provisions for mixing contents B65D 81/32)) |
| **WARNING**            | Group A61J 1/20 is impacted by reclassification into groups A61J 1/2003 - A61J 1/2086. |
Groups A61J 1/20 and A61J 1/2003 - A61J 1/2086 should be considered in order to perform a complete search.

WARNING
Groups A61J 1/20, A61J 1/2003 - A61J 1/2086 should be considered in order to perform a complete search.
Devices for administering medicines orally, e.g. spoons (calibrated capacity measures for fluids or fluent solid material G01F 19/00; weighing spoons G01G 19/56); Pill counting devices; Arrangements for time indication or reminder for taking medicine

Arrangements for time indication or reminder for taking medicine, e.g. programmed dispensers

WARNING

Group A61J 7/0409 is impacted by reclassification into groups A61J 7/0418 - A61J 7/0463.

Groups A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.

WARNING

Groups A61J 7/0418 - A61J 7/0463 are incomplete pending reclassification of documents from groups A61J 7/0409.

Groups A61J 7/0409, A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.

WARNING

Groups A61J 7/0418 - A61J 7/0463 are incomplete pending reclassification of documents from groups A61J 7/0409.

Groups A61J 7/0409, A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.
WARNING
Groups A61J 7/0418- A61J 7/0463 are incomplete pending reclassification of documents from groups A61J 7/0409. Groups A61J 7/0409, A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.

WARNING
Groups A61J 7/0418- A61J 7/0463 are incomplete pending reclassification of documents from groups A61J 7/0409. Groups A61J 7/0409, A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.

WARNING
Group A61J 7/0481 is impacted by reclassification into group A61J 7/049. Groups A61J 7/0481 and A61J 7/049 should be considered in order to perform a complete search.

WARNING
Group A61J 7/0481 is impacted by reclassification into group A61J 7/049. Groups A61J 7/0481 and A61J 7/049 should be considered in order to perform a complete search.

WARNING
Groups A61J 7/0409 - A61J 0463 are incomplete pending reclassification of documents from group A61J 7/0481. Groups A61J 7/0481 and A61J 7/049 should be considered in order to perform a complete search.

WARNING
Groups A61J 7/0409 - A61J 0463 are incomplete pending reclassification of documents from group A61J 7/0481. Groups A61J 7/0481 and A61J 7/049 should be considered in order to perform a complete search.

Feeding-bottles in general {electric heating elements H05B}

WARNING
Group A61J 9/006 is impacted by reclassification into groups A61J 9/0607 - A61J 9/0692. Groups A61J 9/0607 and A61J 9/0692 should be considered in order to perform a complete search.

WARNING
Groups A61J 9/006 is impacted by reclassification into groups A61J 9/0607 - A61J 9/0692. Groups A61J 9/0607 and A61J 9/0692 should be considered in order to perform a complete search.

WARNING
Groups A61J 9/006 is impacted by reclassification into groups A61J 9/0607 - A61J 9/0692. Groups A61J 9/0607 and A61J 9/0692 should be considered in order to perform a complete search.

WARNING
Groups A61J 9/06, A61J 9/0607 - A61J 9/0692 should be considered in order to perform a complete search.

D A61J 2009/0623 · · {facilitating gripping}
N A61J 9/0623 · · {facilitating gripping}

WARNING
Groups A61J 9/0607 - A61J 9/0692 are incomplete pending reclassification of documents from groups A61J 9/06.
Groups A61J 9/06, A61J 9/0607 - A61J 9/0692 should be considered in order to perform a complete search.

D A61J 2009/063 · · {having a particular supporting function}
N A61J 9/063 · · {having a particular supporting function}

WARNING
Groups A61J 9/0607 - A61J 9/0692 are incomplete pending reclassification of documents from groups A61J 9/06.
Groups A61J 9/06, A61J 9/0607 - A61J 9/0692 should be considered in order to perform a complete search.

D A61J 2009/0638 · · · {for supporting in a feeding position}
N A61J 9/0638 · · · {for supporting in a feeding position}
D A61J 2009/0646 · · · {for supporting only in a non-feeding position}
N A61J 9/0646 · · · {for supporting only in a non-feeding position}
D A61J 2009/0653 · · {characterised by the type of support}
N A61J 9/0653 · · {characterised by the type of support}

WARNING
Groups A61J 9/0607 - A61J 9/0692 are incomplete pending reclassification of documents from groups A61J 9/06.
Groups A61J 9/06, A61J 9/0607 - A61J 9/0692 should be considered in order to perform a complete search.

D A61J 2009/0661 · · · {attachable to a device or furniture, e.g. crib, commode or stroller}
N A61J 9/0661 · · · {attachable to other devices or furniture, e.g. crib, commode or stroller}
D A61J 2009/0669 · · · {supported by the infant}
N A61J 9/0669 · · · {supported by the infant}
D A61J 2009/0676 · · · {supported by the caregiver}
N A61J 9/0676 · · · {supported by the caregiver}
D A61J 2009/0684 · · · {having a self-supporting base}
N A61J 9/0684 · · · {having a self-supporting base}
D A61J 2009/0692 · · · {comprising a flexible arm}
N A61J 9/0692 · · · {comprising a flexible arm}

M A61J 15/00 Feeding-tubes for therapeutic purposes (drinking tubes as tableware A47G 21/18)
C A61J 15/0026 · {Parts, details or accessories for feeding-tubes (external tubes from the medical container to a connector outside of the body A61M 39/08)}

WARNING
Group A61J 15/0026 is impacted by reclassification into groups A61J 15/0076 - A61J 15/0088.
Groups A61J 15/0026 and A61J 15/0076 - A61J 15/0088 should be considered in order to perform a complete search.
U A61J 15/0073 · · {Multi-lumen tubes}
D A61J 2015/0076 · · {Feeding pumps (A61M 1/00, A61M 5/142, A61M 25/1018 take precedence)}
N A61J 15/0076 · · {Feeding pumps (A61M 1/00, A61M 5/142, A61M 25/1018 take precedence)}

WARNING
Groups A61J 15/0076- A61J 15/0088 are incomplete pending reclassification of documents from groups A61J 15/0026.
Groups A61J 15/0026, A61J 15/0076 - A61J 15/0088 should be considered in order to perform a complete search.

D A61J 2015/008 · · {Sensor means, e.g. sensing reflux, acidity, pressure (sensors for diagnostic purposes A61B 5/00; sensors for inflation control A61M 25/10184)}
N A61J 15/008 · · {Sensor means, e.g. for sensing reflux, acidity or pressure (sensors for diagnostic purposes A61B 5/00; sensors for inflation control A61M 25/1018)}

WARNING
Groups A61J 15/0076- A61J 15/0088 are incomplete pending reclassification of documents from groups A61J 15/0026.
Groups A61J 15/0026, A61J 15/0076 - A61J 15/0088 should be considered in order to perform a complete search.

D A61J 2017/001 · · {Baby-comforters}
N A61J 17/001 · · {Baby-comforters}

WARNING
Group A61J 17/00 is impacted by reclassification into groups A61J 17/001 - A61J 17/008.
Groups A61J 17/00 and A61J 17/001 - A61J 17/008 should be considered in order to perform a complete search.

D A61J 2017/002 · · {with music box}
N A61J 17/002 · · {with music box}
D A61J 2017/003 · · {with thermometer}
N A61J 17/003 · · {with thermometer}
D A61J 2017/005 · · {light-emitting}
N A61J 17/005 · · {light-emitting means}
D A61J 2017/006 · · {releasing medication}
N A61J 17/006 · · {releasing medication}
D A61J 2017/007 · · {mounted on soft cushion or doll}
N A61J 17/007 · · {mounted on soft cushions or dolls}
D A61J 2017/008 · · {with protective shield}
N A61J 17/008 · · {with protective shields}
Preparations for dentistry (teeth cleaning preparations A61K 8/00, A61Q 11/00; dental prosthesis A61C 13/00; apparatus or methods for oral or dental hygiene A61C)

NOTE
In groups A61K 6/00 - A61K 6/0044 and A61K 6/083 - A61K 6/10, the use of specific polymers is indicated by addition of classification symbols of the subclass C08L preceded by the sign "+", e.g. compositions for taking dental impressions containing alginates are classified in A61K 6/10 + C08L 5/04.

Use of preparations for artificial teeth, for filling or for capping teeth
A61K 6/02
- Use of non-metallic elements or compounds thereof, e.g. carbon (non-metallic elements per se C01B)

Medicinal preparations characterised by special physical form (nuclear magnetic resonance contrast preparations or magnetic resonance imaging contrast preparations A61K 49/18; preparations containing radioactive substances A61K 51/12)

NOTE
Among the one-dot groups of A61K 9/00, classification is not made in the last appropriate place.
A61K 9/00 is subdivided according to the following concepts:
- the drug release technique (A61K 9/0002 and subgroups),
- the site of application (A61K 9/0012 and subgroups),
- the physical form (A61K 9/0087 to A61K 9/7023).

Where relevant, documents are classified in more than one of these subdivisions.

(Galenical forms characterised by the site of application)

Pulmonary tract; Aromatherapy

Sprays or powders for inhalation; Aerolised or nebulised preparations generated by other means than thermal energy; (nasal sprays A61K 9/0043; inhalation of vapours of volatile or heated drugs, e.g. essential oils or nicotine, A61K 9/007; devices A61M)

Solutions; (composition of solutions A61K 47/00)

WARNING
incomplete, see also A61K 9/0012, A61K 47/00, A61K 9/0095

Dispersions; Emulsions; (A61K 9/06 takes precedence; composition of dispersions, emulsions A61K 47/00)

WARNING
incomplete, see also A61K 9/0012, A61K 47/00, A61K 9/0095

Emulsions; (Emulsion preconcentrates; Micelles (composition of emulsions A61K 47/00))

WARNING
incomplete, see also A61K 9/0012, A61K 47/00, A61K 9/0095

Multiple emulsions, e.g. oil-in-water-in-oil; (A61K 9/0026 takes precedence)


Preparations in capsules, e.g. of gelatin, of chocolate; (A61K 9/0004 takes precedence; bite capsules A61K 9/0056)
Microcapsules (having a gas, liquid or semi-solid filling; Solid microparticles or pellets surrounded by a distinct coating layer, e.g. coated microspheres, coated drug crystals (A61K 9/2081 takes precedence; particles with a single coating A61K 9/167))

(Mixtures of one or more drugs in different galenical forms, at least one of which being granules, microcapsules or (coated) microparticles according to A61K 9/16 or A61K 9/50, e.g. for obtaining a specific release pattern or for combining different drugs (tablets containing such a mixture A61K 9/2077))

Nanocapsules; {Nanoparticles; (nanotubes A61K 9/0092; polymersomes A61K 9/1273; pure drug nanoparticles A61K 9/14; drug nanoparticles with adsorbed surface modifiers A61K 9/141; conjugates, e.g. between drug and non-active nanoparticles, A61K 47/48; preparations for in vivo diagnosis A61K 49/00; with radioactive substances A61K 51/00)}

Web, sheet or filament bases; {Films; Fibres of the matrix type containing drug; (hollow drug-filled fibres A61K 9/0092; bandages, dressings or absorbent pads A61F 13/00; chemical aspects thereof A61L 15/00)}

Medicinal preparations containing organic active ingredients

NOTES
1. When classifying in groups A61K 31/00 to A61K 41/00 the symbol A61K 2300/00 may be added, using Combination Sets, to indicate a mixture of active ingredients.

2. In the preparation of new organic compounds and their use in medicinal preparations, classification is only made in the relevant subclasses C07C to C07J according to the type of compound. However, the inventions dealing with medicinal preparations containing at least two active organic ingredients are always classified in this group in addition to the classification for the type of compounds in C07C to C07J.

3. Attention is drawn to the notes in class C07, particularly to the definition of steroids given in Note (1) following the title of C07J and to the definition of carbohydrates and sugars given in the notes following the title of C07H.

4. Salts and complexes of organic active compounds are always classified according to the free active compounds. If a complex is formed between two or more active compounds, then they are classified according to all compounds forming the salts or complexes followed by the symbol A61K 2300/00 (i.e. as a mixture of active organic compounds). According to the last place rule, organic active compounds forming salts with heavy metals should be classified in A61K 33/24 to A61K 33/38 and not in subgroups A61K 31/28 to A61K 31/32, A61K 31/555 or A61K 31/714. This does not apply to complexes, as apparent from the A61K 31/00 scheme, wherein the complexes hemin and hematin are classified in A61K 31/555 and cyanocobalamin in A61K 31/714.

5. From January 2003 onwards, the EPO copies into CPC the IPC classification of the first document received (family representative). However, blends of active ingredients receive the additional symbol A61K 2300/00 as Combination Set.

Amines ((A61K 31/04 takes precedence))

having sulfur, e.g. thiurams (>N-S-C(S)-S-C(S)-N< and >N-S-C(S)-S-C(S)-S-C(S)-N<), Sulfynilamines (N=SO), Sulfonyleamines (N=SO2) (isothiourea A61K 13/155)

Acids; Anhydrides, halides or salts thereof, e.g. sulfur acids, imidic, hydrazonic, hydroximic acids (hydroxamic acids A61K 31/16; peroxy acids A61K 31/327)

NOTE
Cyclic anhydrides are considered to be heterocyclic rings
Carboxylic acids, e.g. valproic acid (Salicylic acid A61K 31/60)

having an amino group

the amino and the carboxyl group being attached to the same acyclic carbon chain, e.g. gamma-aminobutyric acid [GABA], beta-alanine, epsilon-aminocaproic acid, pantothenic acid (carnitine A61K 31/205)

Alpha-aminoacids, e.g. alanine, edetic acids [EDTA], (betaine A61K 31/205; proline A61K 31/401; tryptophan A61K 31/405; histidine A61K 31/4172; peptides not degraded to individual aminoacids A61K 38/00)

Alpha-aminoacids, e.g. alanine, edetic acids [EDTA], (betaine A61K 31/205; proline A61K 31/401; tryptophan A61K 31/405; histidine A61K 31/4172; peptides not degraded to individual aminoacids A61K 38/00)

having nitrogen as a ring hetero atom, e.g. guanethidine, rifamycins (rifampin A61K 31/496)

having six-membered rings with three nitrogens as the only ring hetero atoms, e.g. chlorazanil, melamine, (melarsoprol A61K 31/555)((with four nitrogen atoms A61K 31/495))

Compounds containing cyclopenta[a]hydrophenanthrene ring systems; Derivatives, e.g. steroids

NOTE
Attention is drawn to Note (1) following the title of subclass C07J which explains what is covered by the term "steroids"

containing heterocyclic rings, e.g. danazol, stanozolol, pancuronium or digitogenin ((digitoxin A61K 31/7048))

Salicylic acid; Derivatives thereof

Amides, e.g. salicylamide ((labetalol, metoclopramide A61K 31/166))

having heterocyclic substituents, e.g. 4-salicycloylmorpholine, (sulfasalazine A61K 31/635)

Carbohydrates; Sugars; Derivatives thereof (sorbitol A61K 31/047)

NOTE
In this group, the expressions are used with the meanings indicated in Note (3) following the title of the subclass C07H

Compounds having saccharide radicals attached to non-saccharide compounds by glycosidic linkages

attached to a carbocyclic compound, e.g. phloridzin

attached to a condensed carbocyclic ring system, e.g. sennosides, thiocolchicosides, escin, daunorubicin ((digitoxin A61K 31/7048))

Medicinal preparations of undetermined constitution containing material from algae, lichens, fungi or plants, or derivatives thereof, e.g. traditional herbal medicines ((antigens from pollen A61K 39/36))

NOTE
In this group, common names of plants, where given, are presented in brackets following their corresponding Latin names.
Medicinal preparations containing peptides (peptides containing beta-lactam rings A61K 31/00; cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, A61K 31/00; ergot alkaloids of the cyclic peptide type A61K 31/48; containing macromolecular compounds having statistically distributed amino acid units A61K 31/74; medicinal preparations containing antigens or antibodies A61K 39/00; medicinal preparations characterised by the non-active ingredients, e.g. peptides as drug carriers, A61K 47/00)

NOTES
1. The terms or expressions used in this group follow exactly the definitions given in Note (1) following the title of subclass C07K.
2. Preparations containing fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications are classified as the preparations containing parent peptides. However, preparations containing fragments of peptides having only four or less amino acids are also classified in groups A61K 38/05 to A61K 38/07.
3. Preparations containing peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. preparations containing HIV peptide expressed in E. coli are classified with the preparations containing HIV peptides.
4. This group covers also medicinal preparation containing DNA or RNA encoding for peptides as active ingredient.
5. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their medical uses.

Peptides having up to 20 amino acids in a fully defined sequence; Derivatives thereof (enzyme inhibitors A61K 38/005; gastrins A61K 38/2207; somatostatins A61K 38/31; melanotropins A61K 38/34; protease inhibitors A61K 38/55)

Peptides having 5 to 11 amino acids (A61K 38/043 to A61K 38/046 take precedence)

Peptides having 12 to 20 amino acids (A61K 38/043 to A61K 38/046 take precedence)

Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof (enzyme inhibitors A61K 38/005)

Hormones (derived from pro-opiomelanocortin, pro-enkephalin or prodynorphin A61K 38/33; e.g. corticotropin A61K 38/35)

Insulin-like growth factors (somatomedins), e.g. IGF-1, IGF-2 (insulin-like growth factor binding protein A61K 38/1754)

Protease inhibitors

from animals; from humans (A61K 38/553, A61K 38/556 take precedence)
Medicinal preparations containing antigens or antibodies (materials for immunoassay G01N 33/53)

NOTES
1. Groups A61K 39/002 to A61K 39/295 cover preparations containing protozoa, bacteria, viruses, or subunits thereof, e.g. membrane parts.
2. Preparation of antigen or antibody compositions is also classified in subclass C12N, if the step of cultivating the micro-organism is of interest.
3. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their medical uses.
4. Documents relating to antibodies or DNA or RNA encoding for antibodies and their use in medicinal preparations are classified in group C07K 16/00 or in group C12N 9/0002 according to the antibodies, with the appropriate indexing codes relating to their medical uses.
5. Documents relating to new therapeutical uses of antibodies or DNA or RNA encoding for antibodies are classified in group C07K 16/00 or in group C12N 9/0002 according to the antibodies, with the appropriate indexing codes relating to their medical uses.
6. Documents relating to medicinal preparations containing different antibodies as active ingredients are classified in group C07K 16/00 according to the different active antibodies, with the appropriate indexing codes relating to their medical uses. However, documents relating to medicinal preparations containing antibodies and other compounds as active ingredients are classified in groups A61K 39/395 to A61K 39/42, in association with symbol A61K 2300/00 in Combination Sets.

Bacterial antigens
• {Actinobacteria, e.g. Actinomyces, Streptomyces, Nocardia, Bifidobacterium, Gardnerella}, Corynebacterium; Propionibacterium {{(Mycobacterium A61K 39/04)}}

Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, inert additives

Macromolecular compounds
• Polysaccharides; Derivatives thereof, {e.g. gums, starch, alginate, dextrin, hyaluronic acid, chitosan, inulin, agar, pectin)

Cyclodextrins; Derivatives thereof {{(cyclodextrin inclusion compounds A61K 47/4869)}}

Polymeric drug conjugates
• {the conjugate being characterized by a special physical or galenical form)

NOTE
The conjugates in the A61K 47/48769 subgroups correspond (i) either to a pharmacologically or therapeutically active agent complexed/covalently linked to the special physical or galenical form, e.g. on the surface of a polymeric nanoparticle or liposome, or to polymeric chains in the matrix of a polymeric gel, (ii) or to a special physical or galenical form encapsulating the pharmacologically or therapeutically active agent and modified on its surface or matrix by a modifying agent. In case (i), classification being made according to the nature of the special physical or galenical form in the appropriate A61K 47/48769 subgroup and may be completed by the appropriate A61K 47/48 subgroup defining the compound to which the pharmacologically or therapeutically active agent being linked, e.g.
A61K 47/48053 in case of a drug linked to a phospholipid and inserted in the bilayer surface of a liposome. In case (ii), classification being made according to the nature of the modifying agent. Physical or galenical forms not modified by a modifying agent and/or wherein the pharmacologically or therapeutically active agent being not complexed/covalently linked to said forms, are not classified in A61K 47/48, but in A61K 9/00 and its subgroups.

U A61K 47/48792 · · · (the form being a colloid, emulsion, i.e. having at least a dispersed/continuous oil phase and a dispersed/continuous aqueous phase, dispersion or suspension).

A61K 47/48815 · · · · (the form being a liposome, i.e. a bilayered vesicle, having its surface modified by covalent attachment or complexation of the pharmacologically or therapeutically active agent and/or modifying agent. (Simple encapsulation of a drug which being not functionalised on its surface by a modifying agent: see A61K 9/127))

NOTE
Liposomes modified by a polymer because they incorporate a polymer-lipid conjugate are only additionally classified in A61K 47/48815 if the polymer modifying the lipid being unusual. Liposomes which are pegylated because they incorporate a pegylated lipid are not classified in A61K 47/48815 but in A61K 9/1271. When the surface of the liposome being functionalised by a modifying agent, classification being also made according to the nature of this modifying agent, e.g. a liposome modified on its surface by a peptide being classified in A61K 47/48815 and A61K 47/48238. In case of antibodies, see A61K 47/48823. Liposomes wherein the pharmacologically or therapeutically active agent being linked to a phospholipid of the liposomal surface are classified in A61K 47/48815 and A61K 47/48053.

U A61K 51/00 Preparations containing radioactive substances for use in therapy or testing in vivo

U A61K 51/02 · characterised by the carrier, i.e. characterised by the agent or material covalently linked or complexing the radioactive nucleus

U A61K 51/04 · · organic compounds

NOTE
Organic compounds used as carriers

A61K 51/0489 · · · (Phosphates or phosphonates, e.g. bone-seeking phosphonates; (phospholipids: A61K 51/0408; nucleotides or nucleic acids: A61K 51/0491))

Project: N/A (A61L)

U A61L 9/00 Disinfection, sterilisation or deodorisation of air (body deodorants A61Q 15/00; purifying air by respirators A62B; A62D 9/00; separating dispersed particles from gases or vapours B01D 45/00 to B01D 51/00, B03C 3/00; chemical or biological purification of waste gases B01D 53/34; production of ozone C01B 13/10; air-conditioning systems incorporating sterilisation F24F 3/16)

A61L 9/01 · Deodorant compositions (compositions released by contact with a liquid A61L 9/05)

A61L 9/012 · characterised by being in a special form, e.g. gels, emulsions (A61L 9/048 takes precedence)

A61L 11/00 Methods specially adapted for refuse (desintegrating medical waste B02C19/12M; disposal of medical waste B09B 3/0075)
U A61L 15/00 Chemical aspects of, or use of materials for, bandages, dressings or absorbent pads (for liquid bandages A61L 26/00; radioactive dressings {A61N 5/1029})

NOTES
1. In each set of groups A61L 15/08 to A61L 15/12 and A61L 15/18 to A61L 15/40, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. When classifying in groups A61L 15/08 to A61L 15/12, classification is also made in group A61L 15/14 if the use of materials characterised by their function or physical properties is of interest.
3. When classifying in groups A61L 15/18 to A61L 15/40, classification is also made in groups A61L 15/42 to A61L 15/64 if the use of materials characterised by their function or physical properties is of interest.

U A61L 15/16 Bandages, dressings or absorbent pads for physiological fluids such as urine or blood, e.g. sanitary towels, tampons

U A61L 15/22 containing macromolecular materials

NOTE
In groups A61L 15/22 to A61L 15/30, the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in A61L, the correspondent symbol of the polymer in subclass C08L, e.g. absorbent pad containing starch A61L 15/22, C08L 3/02

A61L 15/24 Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds; Derivatives thereof ((A61L 15/225 takes precedence))

A61L 15/26 Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds; Derivatives thereof ((A61L 15/225 takes precedence))

A61L 15/28 Polysaccharides or their derivatives ((A61L 15/225 takes precedence))

A61L 15/30 Rubbers or their derivatives ((A61L 15/225 takes precedence))

A61L 15/32 Polypeptides; Proteins; Degradation products or derivatives thereof, e.g. albumin, collagen, fibrin, gelatin ((A61L 15/225 takes precedence))

A61L 15/34 Oils, fats, waxes or natural resins ((A61L 15/225 takes precedence))

U A61L 24/00 Surgical adhesives or cements; Adhesives for colostomy devices

NOTES
1. In groups A61L 24/00 to A61L 24/12, the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in A61L, the correspondent symbol of the polymer in subclass C08L, e.g. surgical adhesives based on polymethylmethacrylate: A61L 24/06, C08L 33/12

2. In groups A61L 24/02 to A61L 24/12, in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. When classifying in group A61L 24/00, classification is also made in A61L 33/00 if the materials used are antithrombogenic.

U A61L 24/04 containing macromolecular materials

A61L 24/06 obtained by reactions only involving carbon-to-carbon unsaturated bonds ((A61L 24/043, A61L 24/046 take precedence))

A61L 24/08 Polysaccharides ((A61L 24/043 takes precedence))

A61L 24/10 Polypeptides; Proteins ((A61L 24/043 takes precedence))

A61L 24/12 Ionomer cements, e.g. glass-ionomer cements ((A61L 24/043 takes precedence))
U A61L 31/00

Materials for other surgical articles, (e.g. stents, stent-grafts, shunts, surgical drapes, guide wires, materials for adhesion prevention, occluding devices, surgical gloves, tissue fixation devices (shape or structure of stent-grafts A61F 2/07, of stents A61F 2/82, of surgical gloves A61B 19/04, of surgical drapes A61B 19/08, of occluding devices A61B 17/12022))

NOTES
1. In groups A61L 31/02 to (A61L 31/129), in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups A61L 31/02 to (A61L 31/129), classification is also made in groups A61L 31/14 to A61L 31/18 if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group A61L 31/00, classification is also made in A61L 33/00 if the materials used are antithrombogenic
4. In group A61L 31/00, the use of specific polymers is indicated using the relevant classification symbols of subclass C08L in the second position of the combination set, e.g. surgical clamp based on polyvinylchloride A61L 31/048, C08L 27/06

U A61L 31/04

• Macromolecular materials

U A61L 31/06

• obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds ((A61L 31/041 takes precedence))

Project: N/A (A61M)

U A61M 1/00

Suction or pumping devices for medical purposes; Devices for carrying-off, for treatment of, or for carrying-over, body-liquids; Drainage systems ((A61M 3/00 to A61M 5/00, A61M 11/00 to A61M 16/00, A61M 27/00 to A61M 35/00 take precedence); catheters A61M 25/00; tube connectors, tube couplings, valves or branch units specially adapted for medical use A61M 39/00; devices for taking samples of blood A61B 5/14; implements for holding wounds open A61B 17/02; { saliva removers for dentists A61C 17/04}; filters implantable into blood vessels A61F 2/01; pumps in general F04

WARNING

U A61M 1/10
  · Blood pumps; Artificial hearts; Devices for mechanical circulatory assistance, e.g. intra-aortic balloon pumps (artificial heart valves A61F 2/24; heart stimulation A61H 31/00)

A61M 1/12
  · · implantable into the body ((not used, see subgroups))

A61M 1/14
  · Dialysis systems; Artificial kidneys; Blood oxygenators; (Reciprocating systems for treatment of body fluids, e.g. single needle systems for haemofiltration, phcris (haemofiltration using non reciprocating systems A61M 1/34; extracorporeal blood circuit aspects A61M 1/36)); (processes of separation using semi-permeable membranes B01D 61/00; semi-permeable membranes characterised by the material, manufacturing processes therefor B01D 71/00)

A61M 1/16
  · · with membranes ((A61M 1/30 takes precedence; membranes per se B01D 69/00, B01D 71/00))

A61M 1/34
  · Filtering material out of the blood by passing it through a membrane, i.e. haemofiltration, dialfiltration ((A61M 1/30 takes precedence; extracorporeal blood circuit aspects A61M 1/36))

U A61M 5/00
  Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories thereof, e.g. filling or cleaning devices, arm-rests (vaccination appliances for veterinary use A61D 1/025; tube connectors, tube couplings, valves or branch units specially adapted for medical use A61M 39/00; containers specially adapted for medical or pharmaceutical purposes A61J 1/00; (combinations of vial and syringe for mixing or transferring their contents A61J 1/20; holders for containers for collecting, storing or administering blood or medical fluids A61J 1/18))

U A61M 5/14
  · Infusion devices, e.g. infusing by gravity: Blood infusion; Accessories therefor (suction in pumping blood transfusion A61M 1/02; (infusion containers A61J1/00T))

U A61M 5/142
  · · Pressure infusion, e.g. using pumps

NOTE
  In this group, the following expression is used with the meaning indicated:
  · “pressure infusion” includes powered injection working at a controlled rate

U A61M 5/145
  · · using pressurised reservoirs, e.g. pressurised by means of pistons
flexible, (e.g. independent bags) \( \text{A61M 5/155 takes precedence} \)

pressurised by contraction of elastic reservoirs \( \{ \text{containers for dispensing contents by contraction of an elastic bag provided therein, in general B65D 83/0061} \} \)

Means for controlling media flow to the body or for metering media to the body, e.g. drip meters, counters; \( \{ \text{Monitoring media flow to the body (flow control in general G05D 7/00)} \} \)

electrical or electronic \( \{ \text{A61M 5/16804 and A61M 5/16831 take precedence} \} \)

Syringes

Needles; Details of needles pertaining to their connection with syringe or hub (infusion needles \( \text{A61M 5/158} \)); Accessories for bringing the needle into, or holding the needle on, the body \( \{ \text{(A61M 5/42, A61M 5/46 take precedence; guide needles for catheters A61M 25/065)} \} \); Devices for protection of needles \( \{ \text{apparatus specially adapted for cleaning or sterilising needles A61M 5/001} \} \)

with means for eliminating or preventing injection or infusion of air into body (dialysis systems, blood oxygenators \( \text{A61M 1/14} \); haemofiltration equipment \( \text{A61M 1/34} \); \( \{ \text{automatic tube cut-off A61M 39/281} \} \) )

using low-level float-valve to cut off media flow from reservoir \( \{ \text{position detection of a floating member A61M 5/1685} \} \)

Having means for preventing re-use, or for indicating if defective, used, tampered with or unsterile \( \{ \text{retractable needles or needle protectors with means for preventing re-use A61M 5/321} \} \)

Sprayers or atomisers specially adapted for therapeutic purposes (in general B05B; \{ aerosol containers B65D 83/14\})

Pocket atomisers of the injector type \( \{ \text{aerosol cans A61M 15/009} \} \)

Inhalators \( \{ \text{drug delivery in endotracheal tubes A61M 16/04} \} \)
Until reclassification is complete, groups A61M 15/00 or respective subgroup and A61M 15/0001 - A61M 15/0026, A61M 15/0003 - A61M 15/0043, A61M 15/0046 - A61M 15/0063, A61M 15/0066 - A61M 15/0083, A61M 15/0088, A61M 15/0093 - A61M 15/0098, A61M 15/025, A61M 15/026 should be considered in order to perform a complete search.

A61M 15/06

- Inhaling appliances shaped like cigars, cigarettes or pipes (simulated smoking devices, e.g. imitation cigarettes, A24F 47/002).

U A61M 16/00

Devices for influencing the respiratory system of patients by gas treatment, e.g. mouth-to-mouth respiration; Tracheal tubes (stimulating the respiratory movement by mechanical, pneumatic or electrical means, iron lungs combined with gas breathing means A61H 31/00; supine patient supports therefor A61H 31/008; respiratory apparatus in general A62B; respirators for working under water B63C 11/00).

WARNING


A61M 16/01

- specially adapted for anaesthetising ((A61M 16/104, A61M 16/18 take precedence))

A61M 16/08

- Bellows; Connecting tubes {{having means for taking samples G01N 1/22}; Water traps; Patient circuits}

U A61M 16/10

- Preparation of respiratory gases or vapours

U A61M 16/14

- by mixing different fluids, one of them being in a liquid phase

A61M 16/16

- Devices to humidify the respiration air {{A61M 16/1045 takes precedence}}

U A61M 25/00

Catheters; Hollow probes (dilators A61M 29/00); { peritoneal catheters A61M 1/28; tracheal tubes A61M 16/04; for drainage A61M 27/00; for uterus, vagina or rectum A61M 31/00}; for measuring or testing A61B; { materials for catheters A61L 29/00})

U A61M 25/01

- Introducing, guiding, advancing, emplacing or holding catheters (A61M 25/10 takes precedence)

U A61M 25/02

- Holding devices, e.g. on the body

A61M 25/04

- in the body, e.g. expandible {{A61M 25/10, A61M 16/0488 take precedence}}
Dilators with or without means for introducing media, e.g. remedies (instruments for performing visual medical inspections of cavities or tubes of the body A61B 1/00)

- Dilators made of swellable material (balloon catheters for angioplasty A61M 25/104)

Tubes, tube connectors, tube couplings, valves, access sites or the like, specially adapted for medical use (for respiratory devices, e.g. tracheal tubes A61M 16/00; artificial heart valves A61F 2/24)

WARNING
Not complete, see A61J 1/14

- Tube connectors; Tube couplings (A61M 39/02 takes precedence; connecting needles to syringes or hubs A61M 5/34; connecting catheter tubes to hubs A61M 25/0014)

- for connecting tubes having sealed ends (needle sets A61M 5/162; having valves closing automatically on disconnection of line A61M 39/26)

- having provision for disinfection or sterilisation (A61M 39/143 takes precedence; methods or apparatus for disinfection or sterilisation A61L 2/00)

- Valves or arrangement of valves (A61M 39/02, A61M 39/24 take precedence; regulating valves in infusion systems A61M 5/16881; in devices worn by the patient for the reception of urine, faeces, catamenial or other discharge, or in colostomy devices A61F 5/4405)

- Valves closing automatically on disconnecting the line and opening on reconnection thereof (check valves A61M 39/24)

- Clamping means for squeezing flexible tubes, e.g. roller clamps (tube strippers A61M 1/0078)

Fire prevention or containment (A62C 3/00 takes precedence; flame traps A62C 4/00)

- Physical fire-barriers

- Operating or controlling mechanisms (emergency operation of doors and windows E05F 1/002, E05F 15/72)

Fire prevention, containment or extinguishing specially adapted for particular objects or places (in oil wells E21B 29/08, A62C 35/00; in mines or tunnels E21F 5/00; for nuclear reactors G21C 9/04)

- in vehicles, e.g. in road vehicles

- in aircraft (A62C 3/0207 takes precedence)

- in ships (A62C 3/0207 takes precedence)

Apparatus for jumping (mats for jumping A63B 6/00; for racing or riding sports, e.g. hurdles A63K)

- Training devices for jumping; Devices for balloon-jumping; Jumping aids (A63B 25/02, A63B 25/10 take precedence)

- Mats or the like for absorbing shocks for jumping, gymnastics or the like (for jogging on the spot A63B 69/0035; resiliently-mounted floors E04F 15/22)

- for landing, e.g. for pole vaulting (jumping-mattresses for rescue A62B 1/22)
A63B 9/00 Climbing poles, frames, or stages {(climbing walls for mountaineering training A63B 69/0048; endless loop ladders A63B 22/04)}

WARNING
Documents are being reclassified to A63B 21/072; A63B 21/0728 is complete

A63B 19/00 Hoop exercising apparatus {((A63B 21/0608 takes precedence; not driven by the user, e.g. motor driven, A63G 29/00, A63G 31/00))}

A63B 19/02 · Freely-movable rolling hoops, e.g. gyrowheels (or spheres or cylinders, carrying the user inside (resisting devices overcoming gyroscopic forces of rotating bodies A63B 21/22; standing on it for equilibrium exercises A63B 26/003; spherical hulls or hulls in the shape of a vertical ring for use in water B63B 1/047))

A63B 19/04 · movably supported on a framework (or spheres or cylinders carrying the user inside (standing on it for equilibrium exercises A63B 26/003))

U A63B 21/00 Exercising apparatus for developing or strengthening the muscles or joints of the body by working against a counterforce, with or without measuring devices (electric or electronic controls therefor A63B 24/00; measuring muscular strength A61B 5/22)

A63B 21/012 · using frictional force-resisters {((electromagnetically-controlled brakes A63B 21/0056))}

U A63B 21/02 · using resilient force-resisters

A63B 21/05 · · Linearly-compressed elements {((A63B 21/028 takes precedence))}

A63B 21/22 · Resisting devices with rotary bodies, (e.g. by overcoming gyroscopic forces (A63B 21/0608 takes precedence))

U A63B 22/00 Exercising apparatus specially adapted for conditioning the cardio-vascular system, for training agility or co-ordination of movements (force-resisting aspects A63B 21/00; for particular parts of the body, e.g. to strengthen particular limbs or muscles A63B 23/00; electric or electronic controls therefor A63B 24/00)

NOTE
In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.

A63B 22/02 · with movable endless bands {, e.g. treadmills (other training appliances for running on the spot A63B 69/0028)}

A63B 22/04 · with movable (multiple) steps, (i.e. more than one step per limb, e.g. steps mounted on endless loops, endless ladders (steppers with cantilevered support elements pivoting about an axis A63B 22/0048))

A63B 22/16 · Platforms for rocking motion about a horizontal axis (e.g. axis through the middle of the platform); Balancing drums; Balancing boards or the like {{exercising apparatus with cantilevered support elements pivoting about an axis A63B 22/0056; other exercising apparatus for improving balance A63B 26/003}}

U A63B 23/00 Exercising apparatus specially adapted for particular parts of the body (A63B 22/00 takes precedence; force-resisting aspects A63B 21/00; electric or electronic controls therefor A63B 24/00; devices for exercising or strengthening of fingers, or arms in teaching operation of keyboards G09B 15/06)

U A63B 23/035 · for limbs, i.e. upper or lower limbs, e.g. simultaneously
A63B 23/03508  · · {For a single arm or leg, (A63B 21/0726 takes precedence)}  
WARNING  
not complete, pending the completion of a reclassification

A63B 23/04  · · for lower limbs  
{Training appliances for special sports A63B 69/00; For the purpose of producing mechanical power F03G 5/00)

A63B 23/12  · · for upper limbs (or related muscles, e.g. chest, upper back or shoulder muscles (bench press exercises A63B 21/078; for teaching music G09B 15/06)}

A63B 23/16  · · for hands or fingers  
{for teaching typing G09B 13/00)}

U A63B 25/00  Stilts or the like
A63B 25/02  · Elastic stilts (devices for balloon jumping A63B 5/166)
A63B 25/08  · Hopping-sticks, e.g. pogo sticks; (Hopping apparatus with a single resilient support (devices for balloon jumping A63B 5/166))

U A63B 29/00  Apparatus for mountaineering (helmets A42B 3/00; non-skid devices or attachments for footwear, e.g. mountain climbing irons A43C 15/00; breathing masks or helmets for use at high altitudes A62B 18/00; (safety belts or body harnesses A62B 35/00); picks B25D 7/00)

A63B 29/02  · Mountain guy-ropes or accessories, e.g. avalanche ropes ((hooks, e.g. snaphooks, therefor F16B 45/00)); Means for indicating the location of accidentally buried, e.g. snow-buried, persons (detecting hidden masses in general G01V)

NOTE  
Contrary to the wording of group A63B 29/02, devices for lowering persons are classified in A62B 1/06

U A63B 37/00  Solid balls; (Rigid hollow balls); Marbles (heavy throwing balls A63B 65/06)
A63B 37/02  · Special cores ((A63B 37/0001, A63B 37/0003 take precedence))
A63B 37/12  · Special coverings, (i.e. outer layer material (A63B 37/0001, A63B 37/0003 take precedence))
A63B 37/14  · Special surfaces ((A63B 37/0004 takes precedence))
A63B 39/00  Hollow non-inflatable balls, (i.e. having no valves (rigid balls A63B 37/00))
A63B 47/00  Devices for handling or treating balls, (e.g. for holding or carrying balls (for maintaining ball pressure A63B 39/02; ball holders combined with racket presses A63B 49/16, with racket covers or cases A63B 49/18, fitted on golf bags A63B 55/02))

U A63B 49/00  Tennis, badminton, or like rackets  
WARNING  
Group A63B 49/007, A63B 49/06 are not complete pending a reclassification. See also this group, its subgroups and other groups of A63B

U A63B 49/02  · Frames
A63B 49/04  · · with balancing devices ((A63B 59/0092, A63B 59/0096 take precedence))
A63B 49/06  · · with slits ((slits for guiding strings A63B 49/002; slits for cooling or ventilation A63B 59/0037))
A63B 49/16  · Presses, (e.g. with ball holders (ball holders in general A63B 47/00))
A63B 49/18  · Covers (or cases, e.g. with ball holders (ball holders in general A63B 47/00))
A63B 51/00  Stringing tennis rackets \{(string guides on frames A63B 49/002 ; clamping strings on frames A63B 49/005)\}

A63B 51/02  · Strings; String substitutes; \{(Products applied on strings, e.g. for protection against humidity or wear (ropes or cables in general D07B; yarns or threads for use in sports applications D02G 3/444 ; mechanical methods or apparatus in the manufacture of artificial filaments, threads, fibres, bristles or ribbons D01D; strings for musical instruments G10D 3/10)\}

A63B 53/00  Golf clubs \{(cleaning or maintenance A63B 57/0087 ; measuring, verifying or correcting golf-club characteristics A63B 59/0074 ; clubs or attachments on clubs for golf training A63B 69/3632)\}

A63B 53/10  · \{(Shafts, e.g.) non-metallic shafts \{(metallic A63B 53/12)\}\}

U A63B 59/00  Bats, rackets, or the like, for other games \{(bats with a ball tethered thereto A63B 67/20); {Hand-held throwing or catching aids; Details or accessories of bats, rackets or the like, not limited to one of the groups A63B 49/00 to A63B 57/00, or not otherwise provided for}\}

A63B 59/02  · for lacrosse, pelota or similar games; \{(Bats or rackets having means for catching or holding a ball, e.g. pockets, netting, adhesive type surface; Hand-held throwing or catching aids (juggling games with integral catching arrangements A63B 67/083))\}

A63B 59/10  · for croquet; \{(Mallet-form bats (polo mallets A63B 59/16)\}

A63B 59/14  · for ice hockey \{(A63B 59/12 takes precedence)\}

A63B 59/18  · Circular (or similar planar) bats for other games \{(not covered by groups A63B 59/02 to A63B 59/16)\}

A63B 61/00  Tennis nets or accessories for tennis or like games, \{(e.g. volleyball (devices for holding or carrying balls A63B 47/00 ; for table tennis A63B 67/04))\}

A63B 61/04  · Straining or adjusting devices for nets, \{(e.g. centre strainers, single-double adjusters, net height meters (straining or adjusting devices on the posts A63B 61/02))\}

U A63B 63/00  Targets or goals for ball games \{(golf cups A63B 57/00)\}

A63B 63/08  · with \{(substantially\) horizontal opening for ball, e.g. for basketball \{(A63B 57/0056 , A63B 63/06 take precedence)\}\}

U A63B 65/00  Implements for throwing \{(throwing toys A63H 33/18 ; throwing weapons F41B); \{(Mechanical projectors, e.g. using spring force)\}\}

A63B 65/02  · Spears or the like; \{(Javelins (darts F42B 6/003)\}

A63B 65/10  · Discus discs; Quoits \{(flying disc toys A63H 33/18)\}

U A63B 65/12  · Ball-throwing apparatus with or without catchers; \{(hand-held throwing or catching aids A63B 59/02); \{(Mechanical projectors, e.g. using spring force)\}\}

U A63B 67/00  Miscellaneous sporting games

A63B 67/02  · Special golf games, e.g. miniature golf, \{(e.g. golf putting games played on putting tracks; putting practice apparatus having an elongated platform as a putting track (mats for golf practice A63B 69/3661))\}

A63B 67/08  · Juggling or spinning ball games played as games of skill; \{(Juggling games (games using tethered bodies, e.g. balls A63B 67/10 , A63B 67/20)\}

U A63B 69/00  Training appliances or apparatus for special sports \{(training of parachutists B64D 23/00)\}

A63B 69/02  · for fencing, \{(e.g. means for indicating hits (fencing foils, sabres or epees F41B 13/02)\}
U A63B 69/12 · Arrangements in swimming pools for teaching swimming (or for training)
A63B 69/14 · · Teaching frames for swimming; {Swimming boards (life-buoys, life-belts B63C 9/08)}
A63B 69/16 · · · for cycling, {i.e. arrangements on or for real bicycles (home-trainers A63B 23/0476)}
A63B 69/20 · Punching balls, {e.g. for boxing; Other boxing training devices, e.g. bags (A63B 69/34 takes precedence)}
A63B 69/38 · for tennis {{A63B 61/006, A63B 69/0073 and A63B 69/0097 take precedence}}
A63B 69/40 · Stationarily-arranged devices for projecting balls (or other bodies (ball-dispensing devices A63B 47/002; golf cups with ball ejector means A63B 57/0062; targets with means for returning balls by gravity or mechanically A63B 63/00)); {sling weapons F41B 3/00; traps for clay-pigeon targets F41J 9/18}

U A63B 71/00 Games or sports accessories not covered in groups A63B 1/00 to A63B 69/00 (starting appliances A63K 3/02)
U A63B 71/08 · · Body-protectors for players or sportsmen, {i.e. body-protecting accessories affording protection of body parts against blows or collisions} (protective clothing or garments for sporting purposes A41D 13/00)
A63B 71/12 · · · for the body, {e.g. shoulders}, or the legs {(A63B 71/081 takes precedence)}

Project: N/A (A63F)
U A63F 7/00 Indoor games using small moving playing bodies, e.g. balls, discs or blocks (board games, raffle games A63F 3/00; roulette games A63F 5/00; miniature bowling games A63D 3/00; bagatelle or similar games A63D 13/00; billiards, pocket billiards A63D 15/00)
WARNING
Groups not complete pending reclassification: A63F 7/022, A63F 7/0656, A63F 7/0616, A63F 7/0624, A63F 7/0632, A63F 7/064, A63F 7/0644, A63F 7/0648, A63F 7/0656, A63F 7/24, A63F 7/2418, A63F 7/2427, A63F 7/249, A63F 7/255, A63F 7/28, A63F 7/30, A63F 7/3055, A63F 7/306, A63F 7/307, A63F 7/34, A63F 7/36, A63F 7/382. See also this group and its subgroups
U A63F 7/22 · · · in which the playing bodies are projected through the air {{not used, see subgroups of A63F 7/06}}
U A63F 7/36 · · Constructional details not covered by groups A63F 7/24 to A63F 7/34, {i.e. constructional details of rolling boards, rims or play tables}, e.g. frame, game boards, guide tracks,
A63F 7/38 · · · · Playing surfaces movable during play, {i.e. games played on a non-stationary surface, e.g. the ball intended to be in permanent motion (balls to be shaken or rolled in small boxes A63F 7/04; eccentric weights put into orbital motion by nutating movement of the user A63B 21/0608)}
A63F 13/00 Video games, i.e. games using an electronically generated display having two or more dimensions {{Gaming systems which provide a financial reward G07F 17/32}}

Project: N/A (B01D)
U B01D 1/00 Evaporating {{evaporation in general, e.g. of liquids for gas phase reactions B01B 1/005; removal of incrustation B08B; preparation of starch C08B 30/00; sugar industry C13; prevention of incrustation C23F; drying solid materials or objects by evaporating liquids therefrom F26}}
· by bringing a thin layer of the liquid into contact with a heated surface (\texttt{B01D 1/065} takes precedence)

\textbf{U B01D 23/00} Gravity filters (with moving filtering elements \texttt{B01D 33/0035})

\textbf{U B01D 23/10} with loose filter material

\textbf{B01D 23/16} · Sand or gravel filters (\texttt{filterbed-basin filters, small bed filters, e.g. in closed housing B01D 23/10})

\textbf{B01D 23/26} · integrally combined with devices for controlling the filtration (\texttt{shutting-off elements, changing over from one element to another B01D 35/12, B01D 35/14; control of filtration processes B01D 37/04})

\textbf{U B01D 25/00} Filters formed by clamping together several filtering elements or parts of such elements (disc filters \texttt{B01D 29/39})

\textbf{WARNING}

See WARNING after subclass title, particularly items (7), (8), (12), (13) and (14)

\textbf{B01D 25/12} · Filter presses, i.e. of the plate and frame type (\texttt{filter presses in which the liquid is removed by pressing-out solid matter B30B})

\textbf{U B01D 25/32} · Removal of the filter cakes

\textbf{B01D 25/34} · by moving, (e.g. rotating, the filter elements (\texttt{B01D 25/172, B01D 25/19 take precedence})

\textbf{B01D 29/00} Other filters with filtering elements stationary during filtration, e.g. pressure or suction filters, or filtering elements therefor (\texttt{B01D 24/00, B01D 25/00 and B01D 27/00 take precedence})

\textbf{WARNING}

See WARNING after subclass title, particularly items (7), (8), (9), (10), (12) and (14)

\textbf{U B01D 29/0002} · (Aspects of other filters with filtering elements stationary during filtration, or of filtering elements thereof)

\textbf{U B01D 29/0029} · · (Bag, cage, hose, tube, sleeve, or like filters)

\textbf{B01D 29/0031} · · · (Pressing-out operation after filtration, e.g. by means of membranes (filter presses \texttt{per se B01D 25/12}))

\textbf{B01D 29/09} · with filtering bands, e.g. movable between filtering operations (\texttt{(B01D 25/121 takes precedence)})

\textbf{U B01D 29/76} · Handling the filter cake in the filter for purposes other than for regenerating (\texttt{B01D 29/94 takes precedence})

\textbf{B01D 29/86} · Retarding cake deposition on the filter during the filtration period, e.g. using stirrers (\texttt{(B01D 29/908 takes precedence)})

\textbf{U B01D 33/00} Filters with filtering elements which move during the filtering operation (filters comprising loose filtering material moving or fluidised during filtration \texttt{B01D 24/28 to B01D 24/36; centrifuges B04B})

\textbf{WARNING}

See WARNING after subclass title, particularly items (7), (8), (11) and (14)

\textbf{U B01D 33/44} · Regenerating the filter material in the filter (devices for taking out of action one or more units of multi-unit filters, e.g. for regeneration, \texttt{B01D 35/12})

\textbf{B01D 33/46} · by scrapers, brushes (nozzles) or the like acting on the cake-side of the filtering element (\texttt{(B01D 33/503 takes precedence)})
U  B01D 35/00 Other filtering devices; Auxiliary devices for filtration; Filter housing constructions

WARNING
See WARNING after subclass title, particularly item (14)

B01D 35/02  · Filters adapted for location in special places, e.g. pipe-lines, pumps, stop-cocks, (B01D 35/05 takes precedence; { water pipe system filters E03B 3/18 , E03B 7/07 ; dirt catchers in sewers E03F; filters or strainers for pipe-lines in general B08B, E03F; object or dirt catching devices in sinks or the like E03C 1/26 ; suction strainers or filters for pumps F04B 53/005 , F04D 29/70})

B01D 35/22  · Directing the mixture to be filtered on to the filters in a manner to clean the filters {(B01D 29/904 takes precedence)}

B01D 35/26  · Filters with built-in pumps (filters provided with a pump mounted in or on the casing (aquarium pumps or filters A01K 63/04))

U  B01D 37/00 Processes of filtration (processes specially adapted for filtering gases B01D 46/00)

WARNING
See WARNING after subclass title, particularly item (14)

B01D 37/02  · Precoating the filter medium; Addition of filter aids to the liquid being filtered {{devices for feeding reagents C02F 1/685 and sub-groups; filter aids}}

U  B01D 39/00 Filtering material for liquid or gaseous fluids

B01D 39/14  · Other self-supporting filtering material; {Other filtering material (non-woven fabrics in general D04H 3/00})

U  B01D 51/00 Auxiliary pre-treatment of gases or vapours to be cleaned (preventing dust fires A62C; pretreatment specially adapted for magnetic or electrostatic separation B03C)

B01D 51/02  · Amassing the particles, e.g. by flocculation {{amassing by electric fields B03C 3/0175}}

B01D 53/00 Separation of gases or vapours; Recovering vapours of volatile solvents from gases; Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases, aerosols, (recovery of volatile solvents by condensation B01D 5/00; sublimation B01D 7/00; cold traps, cold baffles B01D 8/00; working-up undefined gaseous mixtures obtained by cracking hydrocarbon oils C10G 70/00; cleaning coal gas C10K; working-up of natural gas, or synthetic natural gas, C10L 3/10; separation of difficult-to-condense gases or air by liquefaction F25J; for investigating materials G01N 30/00)

NOTE
Group B01D 53/34 takes precedence over groups B01D 53/02 to B01D 53/32

B01D 53/02  · by adsorption, e.g. preparative gas chromatography {{(solid sorbent compositions B01J 20/00, preparation of inorganic compounds or elements C01)}}

NOTE
In group B01D 53/02 and subgroups it is desirable to add indexing codes relating to adsorbents, components to be removed, main components in the product gas stream or type of gas or vapour treatment chosen from groups B01D 2253/00, B01D 2256/00, B01D 2257/00 or B01D 2259/00

B01D 53/04  · with stationary adsorbents {(B01D 53/025 takes precedence)}

B01D 53/06  · with moving adsorbents, e.g. rotating beds {(B01D 53/025 takes precedence)}
Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus, accessories or auxiliary operations specially adapted therefor

NOTE
In groups B01D 61/00 to B01D 61/58 it is desirable to add the indexing codes relating to process operations and control chosen from groups B01D 2311/00 to B01D 2311/26Z, to details relating to membrane modules and apparatus indexing codes chosen from B01D 2313/00 to B01D 2313/90, to details relating to the membrane module operation indexing codes chosen from B01D 2315/00 to B01D 2315/16, to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from B01D 2317/00 to B01D 2317/08 and to details relating to the membrane assembly within one housing indexing codes chosen from B01D 2319/00 to B01D 2319/06.

B01D 61/24
· Dialysis; (Membrane extraction (dialysate solution flow A61M 1/1656))

B01D 61/32
· Controlling or regulating (Measuring ultrafiltrate during dialysis A61M 1/16)

B01D 61/58
· Multistep processes ((comprising reverse osmosis or hyperfiltration steps B01D 61/02; comprising ultrafiltration or microfiltration steps B01D 61/142))

NOTE
In group B01D 61/58 specific process steps within the multistep process are indexed by codes chosen from B01D 61/02 to B01D 61/56.

Processes or devices for granulating materials, e.g. fertilisers) in general (granulating metals B22F 9/00, granulating slag C21B 3/06, ores or scrap C22B 1/14; mechanical aspects of working of plastics or substances in a plastic state to make granules B29B 9/00; processes for granulating fertilisers characterised by their chemical constitution, see the relevant groups in C05B to C05G; chemical aspects of powdering or granulating of macromolecular substances C08J 3/12; Rendering particulate materials free flowing in general, e.g. making them hydrophobic

· by dividing the liquid material into drops, e.g. by spraying, and solidifying the drops (evaporating by spraying B01D 1/16)

· in a gaseous medium ((if combined with suspending the material in a gas, e.g. fluidised beds B01J 2/16))

Chemical or physical processes in general, conducted in the presence of fluids and solid particles; Apparatus for such processes (processes or devices for granulating material B01J 2/00; furnaces F27B; (heat exchange apparatus F28C 3/10; F28D 13/00, F28D 17/00, F28D 19/00))

· with fluidised particles ((combustion apparatus with fluidised bed in general F23C 10/00; furnaces with fluidised bed F27B 15/00))

Colloid chemistry, e.g. the production of colloidal materials or their solutions, not otherwise provided for; Making micro-capsules or micro-balloons (use of substances as emulsifying, wetting, dispersing or foam producing agents B01F 17/00)

· Making micro-capsules or micro-balloons ((for medical preparations A61K 9/50))

· by phase separation
B01J 13/08

· · · Simple coacervation, i.e. addition of highly hydrophilic material {(combined with spraying B01J 13/043 ; combined with mechanical division B01J 13/04)}

U B01J 19/00

Chemical, physical, or physico-chemical processes in general (physical treatment of fibres, threads, yarns, fabrics, feathers or fibrous goods made from such materials, see the relevant places for such treatment, e.g. D05M 10/00); Their relevant apparatus (packings, fillings or grids specially adapted for biological treatment of water, waste water or sewage C02F 3/10 ; splashing boards or grids specially adapted for trickle coolers F28F 25/08)

B01J 19/16

· Preventing evaporation or oxidation of non-metallic liquids by applying a floating layer, e.g. of micro-balloons {(in storage tanks B65D 90/42)}

U B01J 20/00

Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Processes for preparing, regenerating or reactivating thereof (use of sorbent compositions in liquid separation B01D 15/00 , use of filter aid compositions B01D 37/02 ; use of sorbent compositions in gas separation B01D 53/02 , B01D 53/14)

U B01J 20/22

· comprising organic material

WARNING

Groups B01J 20/223 and B01J 20/226 are not complete, pending a reorganisation. See also B01J 20/22

U B01J 20/223

· · (containing metals, e.g. organo-metallic compounds, coordination complexes)

B01J 20/226

· · (Coordination polymers, e.g. metal-organic frameworks [MOF], zeolitic imidazolate frameworks (ZIF) (preparation of metal complexes containing carboxylic acid moieties C07C 51/418 ; MOF's per se C07F})

B01J 29/00

Catalysts comprising molecular sieves {(molecular sieves per se C01B)}

NOTES

1. In this group, the following term is used with the meaning indicated:

   · “zeolites” means:
     i. crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
     ii. compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.

2. If metals are introduced into the framework of the molecular sieve already in the synthesis stage, B01J 29/86 to B01J 29/89 take precedence.

3. Mixtures of molecular sieves are classified in B01J 29/005 or B01J 29/80 and receive indexing codes chosen from groups B01J 29/03 to B01J 29/89 to identify the individual constituents of these mixtures

B01J 29/03

· not having base-exchange properties {(B01J 29/005 takes precedence)}

B01J 29/04

· having base-exchange properties, e.g. crystalline zeolites {(B01J 29/005 takes precedence)}

B01J 29/82

· Phosphates {(B01J 29/005 takes precedence)}

B01J 29/86

· Borosilicates; Aluminoborosilicates {(B01J 29/005 takes precedence)}

B01J 29/87

· Gallosilicates; Aluminogallosilicates; Galloborosilicates {(B01J 29/005 takes precedence)}

B01J 29/88

· Ferrosilicates; Ferroaluminosilicates {(B01J 29/005 takes precedence)}

B01J 29/89

· Silicates, aluminosilicates or borosilicates of titanium, zirconium or hafnium {(B01J 29/005 takes precedence)}
Catalysts comprising hydrides, coordination complexes or organic compounds (catalyst compositions used only in polymerisation reactions C08; (catalytic antibodies C12N 9/0002))

NOTES
1. Group B01J 31/003 takes precedence over groups B01J 31/02 to B01J 31/24 (catalytic antibodies C12N 9/0002)
2. In this group, the following terms or expressions are used with the meanings indicated:
   • "Organic compound" a compound in which carbon is bonded to (1)a second carbon; (2)at least one atom of hydrogen or halogen; or (3)nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN), cynamide (H2NCN), cyanogen halide (HalCN), hydrocyanic acid (HCN) isocyanic acid (HNCO) fulminic acid (HCNO) and metal carbides (MCCM) (catalysts comprising any of these exceptions or their salts B01J 27/20 to B01J 27/26).
   • "Organometallic compounds" includes all organic compounds wherein a metal or metallloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. M(1-CR3)n with M= main group metal, n= valency of metal and R= H or hydrocarbyl. (Compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments, excluding carboxylates, with a metal bonded to these heteroatoms B01J 31/02 to B01J 31/0254; unsaturated carbon fragments in combination with transition metals B01J 31/2282.
   • "Coordination complexes" includes any donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a Sigma-bond. Typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry. Complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included (the following groups take precedence: simple hydrocarbyl metal compounds, e.g. of main group metal(loids) B01J 31/12; o xoacid salts B01J 31/04 to B01J 31/10; other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms B01J 31/02 to B01J 31/0254.
   • "Organometallic complexes" includes all coordination complexes comprising a M-C bond, e.g. metal carbynyls (complex cyanides such as M4[Fe(CN)6] B01J 27/26). Included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX, hydrogenation, carbynylation, epoxidation, etc.
   • "Organic complexes" includes all coordination complexes comprising organic ligands (groups B01J 31/1608 to B01J 31/1895 take precedence). "Polymer" includes any macromolecular substance (typically M>10000 g/mol), which comprises repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another. Oligomers, i.e. more than two identical repeating units connected to one
another and typically 500<M<10000 g/mol, are grouped with the respective polymers (polymers per se C08).

3. In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:
   - support and pendant or otherwise immobilised coordination complex; or
   - coordination complex and essential additive.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups B01J 31/26 to B01J 31/38 are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients. Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by ways of worked examples, specific claims and/or explicit alternatives therein.

4. When classifying in B01J 31/00, additional information for the catalysts is provided as follows:
   (4-1) the specifically disclosed intended uses are indexed in B01J 2231/00;
   (4-2) general aspects of the complexes of group B01J 31/16 and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this group are indexed in B01J 2531/00.
   (4-3) conceptual articles, e.g. reviews, are separately indexed in B01J 2231/005 and B01J 2531/001;
   (4-4) additional information regarding the complexes or ligands classified in B01J 31/16 to B01J 31/24 and indexed in B01J 2531/00 is indexed in B01J 2540/00, e.g. non-coordinating substituents on the ligand periphery.

U  B01J 31/02
   containing organic compounds or metal hydrides

B01J 31/04
   containing carboxylic acids or their salts ((B01J 31/0277 to B01J 31/0298 take precedence; multi-metal carboxylate complexes like Pd (II) acetate, i.e. Pd3 (OAc) 6 or Cr(II)acetate, i.e. Cr2(OAc)4

B01J 31/06
   containing polymers (organometallic polymers B01J 31/123; polymer-bound organometallic complexes B01J 31/165; coordination polymers B01J 31/1691)

U  B01J 31/16
   containing coordination complexes

B01J 31/1691
   (Coordination polymers, e.g. metal-organic frameworks [MOF] (preparation of metal complexes containing carboxylic acid moieties C07C 51/418; MOF's per se C07F))

B01J 31/24
   Phosphines (i.e. phosphorus bonded to only carbon atoms, or to both carbon and hydrogen atoms, including sp2-hybridised phosphorus compounds such as phosphabenzene, phosphole or anionic phospholide ligands (complexes with parent phosphate PPh3 B01J 31/1845))

U  B01J 37/00
   Processes, in general, for preparing catalysts; Processes, in general, for activation of catalysts

B01J 37/04
   Mixing ((B01J 37/0009, B01J 37/0018 take precedence))

B01J 37/06
   Washing ((B01J 37/0009, B01J 37/0018 take precedence))

B01J 37/08
   Heat treatment ((B01J 37/0009, B01J 37/0018 take precedence))

U  B01J 39/00
   Cation exchange; Use of material as cation exchangers; Treatment of material for improving the cation exchange properties (cation exchange chromatography processes B01D 15/362)

U  B01J 39/08
   Use of material as cation exchangers; Treatment of material for improving the cation exchange properties
Organic material (B01J 39/16) · ·
Macromolecular compounds ((B01J 39/165 takes precedence))

### Project: N/A (B03D)

**U B03D 1/00**

Flotation (conditioning for flotation, general arrangement of plan B03B)

NOTE

In groups B03D 1/001 to B03D 1/018, in the absence of an indication to the contrary, classification is made in the last appropriate place.

**U B03D 1/14**

- Flotation machines (devices for feeding measured quantities of reagents B01J 4/02; flotation apparatus for enzymology or microbiology C12M 1/09)

**B03D 1/16**

- with impellers; Subaeration machines ((mixing gases or vapours with liquids B01F 3/04))

**B03D 1/24**

- Pneumatic ((mixing gases or vapours with liquids B01F 3/04))

### Project: N/A (B04B)

**U B04B 9/00**

Drives specially designed for centrifuges; Arrangement or disposition of transmission gearing; Suspending or balancing rotary bowls

**B04B 9/14**

- Balancing rotary bowls (balancing per se G01M); {Schrappers}

### Project: N/A (B04C)

**B04C 3/00**

Apparatus in which the axial direction of the vortex ((flow following a screw-thread type line)) remains unchanged {Also devices in which one of the two discharge ducts returns centrally through the vortex chamber, a reverse-flow vortex being prevented by bulkheads in the central discharge duct (combined with other devices B04C 9/00)}

**U B04C 5/00**

Apparatus in which the axial direction of the vortex is reversed ((combined with other devices B04C 9/00))

**B04C 5/14**

- Construction of the underflow ducting; Apex constructions; Discharge arrangements; {discharge through sidewall provided with a few slits or perforations (provided with a great number of slits or perforations B04C 5/10)}

### Project: N/A (B05B)

**U B05B 1/00**

Nozzles, spray heads or other outlets, with or without auxiliary devices such as valves, heating means (B05B 3/00, B05B 5/00, B05B 7/00 take precedence; { nozzles for baths with water or gas jets A61H 33/00, e.g. A61H 33/063, A61H 33/021, A61H 33/026 or A61H 33/027; Nozzles specially adapted for fire-extinguishing A62C 31/02; Nozzles for generating high velocity abrasive fluid jets B24C 5/04); nozzles for jet-printing mechanisms B41J 2/135; { Nozzles for filling containers B65B 39/00; } nozzles for liquid-dispensing, e.g. in vehicle service stations B67D 7/42)

**U B05B 1/14**

- with multiple outlet openings (B05B 1/02, B05B 1/26 take precedence); with strainers in or outside the outlet opening

**B05B 1/18**

- Roses; Shower heads ((with means for adding soap or the like E03C 1/046; jet regulators E03C 1/08))

**B05B 1/20**

- {Arrangements of several outlets along elongated bodies, e.g.}perforated pipes or troughs, e.g. spray booms ((spray booms for agricultural uses A01M 7/0071; spray bars for treating roads E01C 19/176)); Outlet elements therefor

**U B05B 1/30**

- designed to control volume of flow, e.g. with adjustable passages
Spraying or sprinkling apparatus with moving outlet elements or moving deflecting elements:

Spraying or sprinkling heads with rotating elements located upstream the outlet

· · driven by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet

· · discharging over substantially the whole periphery of the rotating member, i.e. the spraying being effected by centrifugal forces

· · driven or controlled by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet

· · with elements moving in a straight line, e.g. along a track; Mobile sprinklers

Electrostatic spraying apparatus; Spraying apparatus with means for charging the spray electrically; Apparatus for spraying liquids or other fluent materials by other electric means

· · Discharge apparatus, e.g. electrostatic spray guns

· · characterised by the use of gas, e.g. electrostatically assisted pneumatic spraying

· · characterised by gasless spraying, e.g. electrostatically assisted airless spraying

Spraying apparatus for discharge of liquids or other fluent materials from two or more sources, e.g. of liquid and air, of powder and gas

· · incorporating means for heating or cooling the material to be sprayed

· · the material having originally the shape of a wire, rod or the like

· · electrically, magnetically or electromagnetically, e.g. by arc

Spraying apparatus for discharge of liquids or other fluent material, without essentially mixing with gas or vapour

· · with means, e.g. a container, for supplying liquid or other fluent material to a discharge device

· · Apparatus in which liquids or other fluent materials from different sources are brought together before entering the discharge device

· · in which one liquid or other fluent material is fed or drawn through an orifice into a stream of a carrying fluid

Spraying apparatus for discharge of liquids or other fluent material, with pressurised or compressible container (aerosol containers)

· · with pump
supply being effected by follower in container, e.g. membrane or floating piston, (or by deformation of container (B05B 9/0838 takes precedence))

Single-unit, i.e. unitary, hand-held apparatus (comprising a container and a discharge nozzle attached thereto), in which flow of liquid or other fluent material is produced by [the muscular energy of] the operator at the moment of use (or by an equivalent manipulator independent from the apparatus (apparatus with an external source or the possibility of permanent accumulation of pressure for discharging the liquid or fluid material B05B 7/00, B05B 9/00))

Components or details (of single units wherein the flow is effected by a pump B05B 11/0027)

Means for neutralising the actuation of the sprayer (pump locking means B05B 11/3059; Means for preventing access to the sprayer actuation means)

Manually actuated means located downstream the discharge nozzle for closing or covering it, e.g. shutters, (automatically removed during actuation of a spray pump B05B 11/3053)

the spray being effected by a gas or vapour flow (from a source where the gas or vapour is not in contact with the liquid or other fluent material to be sprayed), e.g. from a compressible bulb, (an air pump or an enclosure surrounding the container (B05B 11/046 and B05B 11/3087 take precedence))

the flow being effected by a pump

Actuation means (locking means therefor B05B 11/3059; B05B 11/309 takes precedence)

Manually actuated means located downstream the discharge nozzle for closing or covering it, e.g. shutters, (automatically removed during actuation of a spray pump B05B 11/3053)

Arrangements or special adaptations of delivery controlling means in spraying systems (controlling in general G05 (; valves in spray head or nozzles B05B 1/30 and sub-groups ))

for controlling time, or sequence, of delivery

for effecting pulsating flow (Nozzles, spray head or outlet with means for generating a discharge of pulsating nature B05B 1/08)

responsive to condition of liquid or other fluent material discharged, of ambient medium or of target; responsive to condition of spray device or of supply means, e.g. pipes, pumps, their drive

responsive to conditions of ambient medium or target, e.g. humidity, temperature (position or movement of the target relative to the spray apparatus (B05B 12/082, B05B 12/084 take precedence))

Details of spraying plant or apparatus not otherwise provided for;

Mountings, supporting or holding means, or rests for spray heads or other outlets (or for the whole spraying apparatus) when in use or out of use (B05B 13/005, B05B 15/1225 take precedence)

Arrangements for moving spray heads automatically to or from the working position (nozzles for cleaning vehicle windscreens or optical devices moved between a rest position and a working position B60S 1/528)
Project: N/A (B05D)

**U B05D 1/00**

Processes for applying liquids or other fluent materials (*B05D 5/00*, *B05D 7/00* take precedence)

**WARNING**

Groups *B05D 1/60* to *B05D 1/62* do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - *B05D 1/60* to *B05D 1/62* : *B05D 1/00*, *B05D 7/00*

**U B05D 1/02**

· performed by spraying

**B05D 1/04**

· · involving the use of an electrostatic field (*B05D 1/025* and *B05D 1/14* take precedence)

**U B05D 3/00**

Pretreatment of surfaces to which liquids or other fluent materials are to be applied; After-treatment of applied coatings, e.g. intermediate treating of an applied coating preparatory to subsequent applications of liquids or other fluent materials (successively applying liquids or other fluent materials *B05D 1/36*; drying ovens *F26B*)

**WARNING**

Groups *B05D 3/20* to *B05D 3/207* do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - *B05D 3/20* to *B05D 3/207* : *B05D 3/00*

**B05D 3/02**

· by baking (*B05D 3/04* takes precedence)

**B05D 7/00**

Processes, other than flocking, specially adapted for applying liquids or other fluent materials to particular surfaces or for applying particular liquids or other fluent materials ((coating of foodstuffs *A23P 1/084*, *A23P 1/085*)

**WARNING**

Groups *B05D 7/50* to *B05D 7/5885* do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - *B05D 7/50* to *B05D 7/5885* : *B05D 7/00*

Project: N/A (B07C)

**U B07C 5/00**

Sorting according to a characteristic or feature of the articles of material being sorted, e.g. by control effected by devices which detect or measure such characteristic or feature; Sorting by manually actuated devices, e.g. switches (sorting by hand only *B07C 7/00*; separating solids from solids by sieving, screening, or sifting or by using gas currents or other separating by dry methods applicable to bulk material *B07B*)

**U B07C 5/34**

· Sorting according to other particular properties ((material testing per se *G01N*; quality control *G07C 3/14*))

**B07C 5/3412**

· · according to a code applied to the object which indicates a property of the object, e.g. quality class, contents or incorrect indication ((sorting according to size measured by light-responsive means *B07C 5/10*; sorting according to optical properties *B07C 5/342*; for packages *B65D 79/02*; for information carriers *G06K 7/00*))

**B07C 9/00**

Sorting, with or without orientating, not otherwise provided for ( e.g. sorting of table equipment (washing and rinsing machines for tableware *A47L 15/00*, *A47L 15/02*; machines for polishing table equipment *A47L 21/02*))
\textbf{Project: N/A (B08B)}

\textbf{U B08B 3/00} Cleaning by methods involving the use or presence of liquid or steam \textit{(B08B 9/00 takes precedence)}

\textbf{U B08B 3/04} \begin{itemize}
  \item Cleaning involving contact with liquid
  \item using perforated drums in which the article or material is placed \textit{((B08B 3/042 takes precedence))}
\end{itemize}

\textbf{U B08B 5/00} Cleaning by methods involving the use of air flow or gas flow \textit{(B08B 6/00 takes precedence)}

\textbf{U B08B 5/02} \begin{itemize}
  \item Cleaning by the force of jets, e.g. blowing-out cavities \textit{((airguns or nozzles per se B05B 1/005))}
\end{itemize}

\textbf{U B08B 7/00} Cleaning by methods not provided for in a single other subclass or a single group in this subclass

\textbf{U B08B 7/02} \begin{itemize}
  \item by distortion, beating, or vibration of the surface to be cleaned \textit{((B08B 7/0007 takes precedence))}
\end{itemize}

\textbf{U B08B 9/00} Cleaning hollow articles by methods or apparatus specially adapted thereto \textit{(B08B 3/12, B08B 6/00 take precedence)}

\textbf{U B08B 9/08} \begin{itemize}
  \item Cleaning containers, e.g. tanks
  \item by using apparatus into or on to which containers e.g. bottles, jars, cans are brought \textit{((washing or rinsing crockery or tableware A47L 15/00))}
\end{itemize}

\textbf{U B08B 11/00} Cleaning flexible or delicate articles by methods or apparatus specially adapted thereto \textit{(B08B 3/12, B08B 6/00 take precedence)}

\textbf{U B08B 11/02} \begin{itemize}
  \item Devices for holding articles during cleaning \textit{((B08B 9/42 takes precedence))}
\end{itemize}

\textbf{U B08B 15/00} Preventing escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area (parts, details or accessories of cooking-vessels for withdrawing or condensing cooking vapours from such vessels \textit{A47J 36/38 ; refuse disposal \textit{B65F ; devices for conducting smoke or fumes, e.g. flues, \textit{F23J 11/00 ; removing cooking fumes from domestic stoves or ranges \textit{F24C 15/20 ; air conditioning, ventilation \textit{F24F)}}})

\textbf{U B08B 15/02} \begin{itemize}
  \item using chambers or hoods covering the area \textit{((B08B 15/02 takes precedence))}
\end{itemize}

\textbf{U B08B 15/04} \begin{itemize}
  \item from a small area, e.g. a tool \textit{((removing chips B23Q 11/0042))}
\end{itemize}

\textbf{B08B 17/00} Methods preventing fouling \textit{((preventing accumulation of deposits in pneumatic conveyors \textit{B65G 53/521)))}

\textbf{Project: MP0118 (B21)}

\textbf{M B21} MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (casting, powder metallurgy B22; shearing B23D; working of metal by the action of a high concentration of electric current B23H; soldering, welding, flame-cutting B23K; other working of metal B23P; punching sheet material in general B26F; processes for changing of physical properties of metals C21D, C22F; electroforming C25D 1/00)

\textbf{NOTE}

\textit{1. This class covers:}
\begin{itemize}
  \item working of metallic materials;
  \item working of non-metallic materials, provided that the methods applied are similar to those used in metal-working and not provided for elsewhere.
\end{itemize}

\textit{2. This class does not cover: does not cover:}
• combinations of operations covered by different subclasses of class B21, which are covered by subclass B23P;
• combinations of operations covered by any particular subclass of class B21 with operations covered by other classes, e.g. with operations involving removal of material, which are also covered by subclass B23P, except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of B21 the combination is classified in that subclass.

2. Processes of a kind covered by this class but applied to non-metallic materials are classified in this class if they are applicable to metal and cannot be classified fully in another class.

Project: N/A (B21B)

U B21B 1/00 Metal-rolling methods or mills for making semi-finished products of solid or profiled cross-section (B21B 17/00 to B21B 23/00 take precedence; with respect to composition of material to be rolled B21B 3/00; extending closed shapes of metal bands by simultaneous rolling at two or more zones B21B 5/00; metal-rolling stands as units B21B 13/00; continuous casting into moulds having walls formed by moving rolls B21D 11/06; Sequence of operations in milling trains; Layout of rolling-mill plant, e.g. grouping of stands; Succession of passes or of sectional pass alternations

U B21B 1/08 for rolling {structural sections, i.e.} work of special cross-section, e.g. angle steel (rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects B21H 8/00)

B21B 1/10 in a single two-high or universal rolling mill {stand (B21B 1/085 to B21B 1/098 take precedence)}

B21B 1/12 in a continuous process, {i.e. without reversing stands (B21B 1/085 to B21B 1/098 take precedence)}

B21B 1/14 in a non-continuous process, {i.e. at least one reversing stand (B21B 1/085 to B21B 1/098 take precedence)}

U B21B 1/22 for rolling {plates, strips,} bands or sheets of indefinite length (B21B 1/42 takes precedence)

B21B 1/24 in a continuous {or semi-continuous} process {{(B21B 1/224 takes precedence)}

B21B 1/30 in a non-continuous process {{(B21B 1/224 takes precedence)}

U B21B 25/00 Mandrels for metal tube rolling mills, e.g. mandrels of the types used in the methods covered by group B21B 17/00; Accessories or auxiliary means therefor; {Construction of, or alloys for, mandrels or plugs}

B21B 25/06 Interchanging mandrels, {fixing plugs on mandrel rods or cooling during interchanging mandrels {separating tubes from mandrels B21C 45/00)}

U B21B 27/00 Rolls, {roll alloys or roll fabrication} {shape of working surfaces required by special processes B21B 1/00}; Lubricating, cooling or heating rolls while in use

U B21B 27/02 Shape or construction of rolls {for rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects B21H 8/02} {{(B21B 27/005 takes precedence)}

B21B 27/03 Sleved rolls {{(B21B 27/028 takes precedence)}

B21B 29/00 Counter-pressure devices acting on rolls to inhibit deflection of same under load, e.g. backing rolls; {Roll bending devices, e.g. hydraulic actuators acting on roll shaft ends (control devices responsive to roll bending B21B 37/38)}
U B21B 37/00 Control devices or methods specially adapted for metal-rolling mills or the work produced thereby (methods or devices for measuring specially adapted for metal-rolling mills B21B 38/00)
   B21B 37/58 Roll-force control; Roll-gap control (B21B 38/105 takes precedence)
B21B 38/00 Methods or devices for measuring, (detecting or monitoring) specially adapted for metal-rolling mills, e.g. position detection, inspection of the product (Control devices or methods B21B 37/00)

U B21B 41/00 Guiding, conveying, or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves; Loop lifters
   B21B 41/08 without overall change in the general direction of movement of the work
   B21B 41/10 Loop deflectors (B21B 39/084 takes precedence)

U B21B 45/00 Devices for surface (or other) treatment of work, specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills (B21B 15/00, B21B 1/227 and B21B 27/005 take precedence; technical features of scaling-off devices B21C 43/00)
   B21B 45/02 for lubricating, cooling, or cleaning (in particular in combination with forging or pressing devices B21B 15/005, control of flatness or profile using lubricating or cooling B21B 37/44)
   B21B 45/04 for de-scaling, e.g. by brushing (descaling of rod or wire B21C 43/04)

Project: MP0118 (B21D)
M B21D WORKING OR PROCESSING OF SHEET METAL OR METAL TUBES, RODS OR PROFILES WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (operations of the kind involved in the manufacture of such products B21B, B21C; working or processing of wire B21F; cutting or severing devices or machines in general B26; presses in general B30B)

NOTES
1. This subclass covers cutting or perforating of sheet metal or other stock material
2. This subclass does not cover the working of metal foils in a manner analogous to the working of paper, which is covered by classes B26, B31

Project: N/A (B21D)
U B21D 11/00 Bending not restricted to forms of material mentioned in only one of groups B21D 5/00, B21D 7/00, B21D 9/00; Bending not provided for in groups B21D 5/00 to B21D 9/00 (corrugating or bending into wave form B21D 13/00, B21D 15/00; flanging B21D 19/00); Twisting
   B21D 11/10 Bending specially adapted to produce specific articles, e.g. leaf springs (making or bending leaf springs B21D 53/886)

U B21D 15/00 Corrugating tubes (wrinkle-bending using mandrels or the like B21D 9/14)
U B21D 15/04 transversely, e.g. helically
   B21D 15/06 annularly (with thinning B21C 37/205)

U B21D 37/00 Tools as parts of machines covered by this subclass (forms or constructions of tools uniquely adapted for particular operations, see the relevant groups for the operations)
   B21D 37/18 Lubricating, e.g. lubricating tool and workpiece simultaneously (lubricating workpieces for deep-drawing B21D 22/201)
Application of procedures in order to connect objects or parts, e.g. coating with sheet metal otherwise than by plating ({joining mitred profiles B21D 53/745; } riveting B21J; uniting components by forging or pressing to form integral members B21K 25/00; welding B23K; press-fitting, force-fitting, or shrinking in general B23P 11/00, B21D 19/00; by adhesives F16B 11/00; {Connections as such F16L, F16B}); Tube expanders

of tubes with tubes; of tubes with rods {{crimped pipe joints as such F16L 13/14}}

Feeding, positioning or storing devices combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal, metal tubes or metal profiles; Associations therewith of cutting devices (cutting devices associated with the tool, see the relevant group for the tool)

Advancing work in relation to the stroke of the die or tool

by means in mechanical engagement with the work

specially adapted for multi-stage presses {{B21D 43/145 takes precedence}}

by rollers {{B21D 43/145 takes precedence}}

by grippers {{B21D 43/055, B21D 43/057, B21D 43/145 take precedence}}

by chains or belts {{B21D 43/145 takes precedence}}

Making hollow objects (from thick-walled or non uniform tubes B21K 21/00)

characterised by the structure of the objects {{B21D 51/26 takes precedence}}

Making hollow objects characterised both by their structure and by their use is classified only in group B21D 51/16

characterised by the use of the objects (making heat exchangers B21D 53/02)

Making inlet or outlet arrangements of cans, tins, baths, bottles, or other vessels; Making can ends; Making closures

Making closures, e.g. caps (folded of thin metal foils in the way of making paper caps B31D 5/00; making closures in conjunction with applying same B67B)

Placing sealings or sealing material {{moulding plastic sealing material into closure members B29C 70/80}}

Making other particular articles (making wire fabrics B21F; making chains or chain parts B21L)

locksmith’s goods, e.g. handles

keys {{making keys by combined operations B23P 15/005}}

WORKING AND OR PROCESSING OF METAL WIRE {{reducing diameter by} rolling of metal B21B; by drawing, auxiliary operations used in connection with metal—working without essentially removing material B21C; bundling articles B65B 13/00}

MAKING NEEDLES, PINS OR NAILS OF METAL
Making gear wheels, {racks, spline shafts or worms} · with cylindrical outline, {e.g. by means of die rolls (worms B21H 5/005)}

FORGING; HAMMERING; PRESSING METAL; RIVETING; FORGE FURNACES (rolling of metal B21B; making particular products by forging or pressing B21K; cladding or plating B23K; finishing surfaces by hammering B23P 9/04; compacting surfaces by blasting with particulate material B24C 1/10; general features of presses, presses for consolidating scrap B30B; furnaces in general F27; furnaces in general F27)

Preparing metal stock { or similar ancillary operations prior, during or post forging, e.g. heating or cooling (pretreatment for rolling B21B 1/02, B21B 15/0035)}

MAKING FORGED OR PRESSED METAL PRODUCTS, e.g. HORSE-SHOES, RIVETS, BOLTS, OR WHEELS (making particular articles by working sheet metal without essentially removing material B21D; processing wire B21F; making pins, needles or nails B21G; making particular articles by rolling B21H; forging machines, pressing machines, hammering machines, in general B21J; making chain B21L; making chains B21L; plating B23K)

NOTE
This subclass includes only forging, pressing, or hammering operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.

MAKING METAL CHAINS (making chains or chain links by casting B22D 25/02; chains in general F16G)

Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering; Apparatus specially adapted therefor; {Presses and furnaces}

Sintering only · by using electric current {other than for infra-red radiant energy}, laser radiation or plasma (B22F 3/11 takes precedence); {by ultrasonic bonding (B22F 3/115 takes precedence)}

Manufacture of composite layers, workpieces, or articles, comprising metallic powder, by sintering the powder, with or without compacting { wherein at least one part is obtained by sintering or compression (application of coating layers by use of metal powders, see C23C)}
M B23

MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR (punching, perforating, making articles by processing sheet metal, tubes, or profiles B21D; wire-working B21F; making pins, needles, or nails B21G; making chains B21L; grinding B24)

NOTES

1. This class covers:
   • operations not provided for in any other class working of metallic materials;
   • combinations working of operations covered by different subclasses of classes B21 to B24 non-metallic materials, which combinations are covered by subclass B23P, with provided that the exception of subsidiary operations performed methods applied are similar to those used in conjunction with main operations covered by a single subclass metal-working and not provided for elsewhere;
   • features, specific to machine tools, which relate to a requirement or problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass B23Q, although the realisation of these features may differ according to the kind of machine tool concerned. The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially B23B, in which case the subclasses in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.

2. In this class, the following terms or expressions are used with the meanings indicated:
   • "metal-working" covers the working of other materials unless the context requires otherwise;
   • "kind of operations" and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;
   • "kind of machine" means a machine designed for a particular kind of metal-working operation (e.g. a lathe);
   • "form of machine" means a machine of a particular kind adapted or arranged for a particular way of working or for particular work, e.g. face-plate lathe, tailstock lathe, turret lathe;
   • "different machines" covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines.

3. If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. F16, takes precedence.
Project: RP0109 (B23K)

D B23K 2001/12  · {specially adapted for particular articles or work}

U B23K 5/00  Gas flame welding

D B23K 2005/207  · {specially adapted for particular articles or work}

Project: N/A (B23K)

B23K 7/00  Cutting, scarfing, or desurfacing by applying flames {{(thermal deburring B23D 79/005)}}

U B23K 9/00  Arc welding or cutting {{(electro-slag welding B23K 25/00 ; welding transformers H01F ; welding generators H02K)}}

B23K 9/08  · Arrangements or circuits for magnetic control of the arc {{(stabilising of the arc position by magnetic means B23K 9/0737)}}

B23K 9/16  · making use of shielding gas {{(selection of media B23K 35/38)}}

U B23K 13/00  Welding by high-frequency current heating

B23K 13/04  · by conduction heating {{(B23K 13/02 takes precedence)}}

U B23K 20/00  Non-electric welding by applying impact or other pressure, with or without the application of heat, e.g. cladding or plating

B23K 20/02  · by means of a press; {{(Diffusion bonding B23K 20/001, B23K 20/04 take precedence)}}

U B23K 26/00  Working by laser beam, e.g. welding, cutting, boring {{(lasers per se H01S 3/00 ; { laser assisted deposition C23C; laser inspection or alignment G01B; laser sintering of metallic powder B22F 3/105, of plastics B29C 67/00 , of glass C03B 19/06, of ceramics C04B 35/64; applying identification marks by laser B41M 5/24)}}

U B23K 26/02  · Positioning or observing the workpiece, e.g. with respect to the point of impact; {{Aligning, aiming or focusing the laser beam}}

B23K 26/03  · · Observing, {{(e.g. monitoring)}the workpiece} {{(protective devices for the eye, carried on the body or in the hand A61F 9/02, A61F 9/04)}}

B23K 26/18  · using absorbing layers on the material being worked, e.g. for marking or protecting purposes {{(observing devices provided with laser radiation protection devices B23K 26/03; using masks on the workpiece for shaping the laser beam B23K 26/061; interposing material for facilitating bonding B23K 26/203; laser anti-reflection devices, e.g. optical isolators H01S 3/064)}}

B23K 26/34  · Welding for purposes other than joining, e.g. build-up welding {{(laser alloying or sintering C23C)}}

B23K 26/36  · Removing material {{(laser wire stripping H02G 1/128; cleaning by laser treatment B08B 7/0042)}}

B23K 33/00  Specially-profiled edge portions of workpieces for making soldering or welding connections; Filling the seams formed thereby {{(B23K 11/14 takes precedence)}}

Project: MP0118 (B23P)

M B23P  OTHER WORKING OF METAL; COMBINED OPERATIONS; UNIVERSAL MACHINE TOOLS (arrangements for copying or controlling B23Q)

NOTES

1. This subclass covers:

   • combinations of work-modifying operations covered by different subclasses of classes B21 - B24:
combinations of metal-working operations with non-mechanical treatments of metal not provided for elsewhere, for example in C21D, C22C, C22F or C23.

4.–2. This subclass does not cover non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass.

1. This subclass does not cover non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass;
2. subsidiary operations performed in conjunction with main operations covered by a single subclass, e.g. assembling of parts as an essential feature of a following metal-working operation, since they are not regarded as operations per se.

2. In this subclass, the following expressions are used with the meanings indicated:

"combined operations" excludes the assembling of parts if it is an essential feature of the next metal-working operation, since it is not regarded as an operation per se.

"working of metal" and equivalent expressions include non-mechanical treatment of metal so far as it is not provided for in any other class or subclass, for example in C21D, C22C, C22F, C23. Thus, combinations of such non-mechanical treatment with other metal-working are classified in this subclass.

3. Attention is drawn to the Notes following the title of class B23.

Project: N/A (B23P)

U B23P 15/00 Making specific metal objects by operations not covered by a single other subclass or a group in this subclass

B23P 15/26 heat exchangers (or the like (making heat exchangers by methods covered by other subclasses B21D 53/02))

Project: N/A (B23Q)

U B23Q 1/00 Members which are comprised in the general build-up of a form of machine, particularly relatively large fixed members (B23Q 37/00 takes precedence)

U B23Q 1/25 Movable or adjustable work or tool supports

U B23Q 1/26 characterised by constructional features relating to the co-operation of relatively movable members; Means for preventing relative movement of such members (bearings for linearly moving parts F16C 29/00)

B23Q 1/42 using T-, V-, dovetail-section or like guides (B23Q 1/40 takes precedence)

NOTES

1. In groups B23Q 1/44 to B23Q 1/62, the following expressions are used with the meaning indicated:

• "sliding pair" means a pair consisting of two elements operating in such a way that only straight line movement between both elements is possible;
• "rotating pair" means a pair consisting of two elements operating in such a way that only rotary movement between both elements is possible;
• "screw pair" means a pair consisting of two elements operating in such a way as to produce simultaneous rotation and axial translation between both elements.

2. In groups B23Q 1/44 to B23Q 1/62, where more than one pair of elements is provided on the same axis for the same kind of movement, the pairs are regarded as a single pair for the purposes of classification.
Project: N/A (B24D)

**U B24D 3/00**  
Physical features of abrasive bodies, or sheets, e.g. abrasive surfaces of special nature; Abrasive bodies or sheets characterised by their constituents (composition of friction linings **F16D 69/02**)

**U B24D 3/02**  
- the constituent being used as bonding agent

**U B24D 3/20**  
- - and being essentially organic

**B24D 3/28**  
- - - Resins (or natural or synthetic macromolecular compounds **B24D 3/22** takes precedence)

Project: N/A (B25D)

**B25D 16/00**  
Portable percussive machines with superimposed rotation, {the rotational movement of the output shaft of a motor being modified to generate axial impacts on the tool bit (combined percussion and rotary drilling adapted for earth drilling **E21B 6/00**)}

**U B25D 17/00**  
Details of, or accessories for, portable power-driven percussive tools {(details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed **B25F 5/00**)}

**B25D 17/08**  
- Means for retaining and guiding the tool bit, e.g. chucks {allowing axial oscillation of the tool bit (**B25D 17/005** takes precedence)}

Project: N/A (B25J)

**U B25J 1/00**  
Manipulators positioned in space by hand (of master-slave type **B25J 3/00**; micromanipulators **B25J 7/00**)

**B25J 1/04**  
- rigid, e.g. shelf-reachers {(without grippers **A47F 13/06**)}

**B25J 7/00**  
Micromanipulators {(specimen supports for investigating or analysing materials **G01N 23/2204**; associated with microscopes **G02B 21/32**; means for supporting or positioning the objects or the material in discharge tubes **H01J 37/20**)}

**U B25J 13/00**  
Controls for manipulators (programme controls **B25J 9/16**; control in general **G05**)

**B25J 13/02**  
- Hand grip control means {(handles or pedals for crane control **B66C 13/56**; for measuring the force applied to control members **G01L 5/22**; hand-held casings for switching devices, e.g. joy-sticks **H01H 9/0214**)}

**U B25J 15/00**  
Gripping heads {and other end effectors (grippers used in machine tools **B23Q 7/04**; gripping members fitted on cranes **B66C 1/42**, **B66C 1/44**; gripping means used in the manufacture of semiconductors **H01L 21/68707**; gripping means used for mounting electrical components **H05K 13/04**)}

**U B25J 15/08**  
- having finger members (**B25J 15/02**, **B25J 15/04** take precedence)

**B25J 15/10**  
- - with three or more finger members {(**B25J 15/0009** takes precedence)}

**U B25J 21/00**  
Chambers provided with manipulation devices (constructional features of the mounting of the manipulator in the wall **B25J 1/08**; {glove-boxes for nuclear applications **G21F 7/04**})

**B25J 21/02**  
- Glove-boxes, i.e. chambers in which manipulations are performed by the human hands in gloves built into the chamber walls {(**glove-boxes for removal of dirt **B08B 15/026**; glove-boxes shielded against radiation **G21F 7/04**)}; Gloves therefor
Project: N/A (B26D)

B26D  CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING (soil-working A01B; for growing crops or plants A01D, A01G; for fodder or straw A01F; for bulk butter A01J; for dough A21C; slaughtering A22B; for tobacco, cigars or cigarettes A24; marking-out, perforating or making buttonholes A41H 25/00; manufacturing footwear A43D; brushmaking A46D; surgery A61B; disintegrating, mincing or shredding in general B02C; cutting wire, making pins or nails B21F, B21G; of the kind used for metal B23; cutting by abrasive fluid jets B24C 5/02; hand-held cutting tools B26B; perforating, cutting-out, stamping-out or punching, or severing by means other than cutting B26F; for wood B27; for stone B28D; working of plastics or substances in a plastic state B29; making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, B31B; article or web delivery apparatus incorporating cutting or line-perforating devices B65H 35/00; for leather or upholstery B68; C14B; for glass C03B; making matches C06F; for peat C10F; for sugar C13H; for textile materials D06H; civil engineering, building, mining, see Section E; for light guides G02B 6/25; cutting processed photographic material G03D 15/04)

NOTES

1. This subclass covers:
   • cutting non-metallic sheet material and metal foil in general;
   • cutting other forms of non-metallic material not otherwise provided for;
   • features specific to machines for cutting, perforating, punching, cutting-out, stamping-out and severing by means other than cutting, which relate to a requirement or problem of a nature which is not peculiar to a machine for these purposes, that is, details of or arrangements for operating or controlling such machines, although the realisation of such features may differ according to the kind of machine concerned. This subclass covers such features in general even if the feature in any particular case is to some extent peculiar to, or is claimed only for, a machine designed for perforating, punching, cutting-out, stamping-out, or for severing other than by cutting.

2. If the details or arrangements have no essential features specific to cutting, perforating, punching, cutting-out, stamping-out or severing machines, the more general classes, e.g. F16, take precedence.

3. In this subclass, in groups B26D 5/00 and B26D 7/00, the following term is used with the meaning indicated:
   • "cutting" includes cutting-out, stamping-out, punching, perforating, and severing by means other than cutting.

Project: MP0118 (B27B)

M  B27  SAWS  FOR WOOD OR SIMILAR MATERIAL; COMPONENTS OR ACCESSORIES THEREFOR (saws specially adapted for pruning or debranching A01G 3/08; sawing apparatus specially adapted for felling trees A01G 23/091; features not restricted to a particular type of wood saw B23D, e.g. attaching saw blades B23D 51/00; machine tool frames, beds, pillars or analogous like members, in general B23Q 1/01)

Project: MP0118 (B27C)

M  B27  PLANING, DRILLING, MILLING, TURNING, OR UNIVERSAL MACHINES FOR WOOD OR SIMILAR MATERIAL (machine tools in general B23; working wood using abrasive, e.g. sanding, devices B24; tools for these purposes B27G)
Project: MP0118 (B27F)

M B27F

DOVETAILED WORK; TENONS; SLOTTING MACHINES for wood or similar material; nailing or stapling machines (hand-held nailing or stapling tools B25C; hand-held nailing or stapling tools B25C; manufacture of cases, boxes, trunks or trunks boxes from wood B27M 3/34; connections for building structures in general, e.g. dowels for use in building constructions E04B 1/38; jointing elements in general, e.g. dowels in general, F16B manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013; manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013)

NOTE

This subclass covers also the assembling of the elements to be jointed, e.g. using adhesives, but the application of adhesives or glue to surfaces of wood to be jointed per se is dealt with in group B27G 11/00 (manufacture of specific semi-finished or finished articles B27M 3/00).

Project: N/A (B27G)

B27G 11/00

Applying adhesives or glue to surfaces of wood to be joined (applying liquids, e.g. liquid adhesives, to surfaces in general B05C, B05D; adhesive processes C09J 5/00; associated with particular wood-working, see the relevant subclasses).

Project: MP0118 (B27H)

M B27H

BENDING WOOD OR SIMILAR MATERIAL; COOPERAGE; WHEEL-MAKING WHEELS FROM WOOD OR SIMILAR MATERIAL

Project: N/A (B27K)

U B27K 3/00

Impregnating wood, (e.g. impregnation pretreatment, for example puncturing; Wood impregnation aids not directly involved in the impregnation process) (dyeing, staining B27K 5/00).

U B27K 3/02

· Processes; Apparatus

B27K 3/15

· · Impregnating involving polymerisation (including use of polymer-containing impregnating agents (macromolecular compounds derived from lignocellulosic materials C08H; compositions of lignin-containing materials C08L 97/02))

NOTES

1. When classifying in group B27K 3/15, classification is additionally made in the groups of subclass M08L for defining the chemical polymeric structure.

2. In groups B27K 3/16 to B27K 3/50, in the absence of an indication to the contrary, impregnating agents are classified in the last appropriate place.

Project: N/A (B27L)

B27L 5/00

Manufacture of veneer (working veneer or plywood B27D) (Preparatory processing therefor (drying F26B)).

Project: N/A (B27M)

U B27M 3/00

Manufacture or reconditioning of specific semi-finished or finished articles (features of copying devices B23Q; manufacture of plywood or veneer, shaping plywood or veneer into articles B27D; of central layers for plywood B27D 1/06; nailing or stapling machines in general B27F 7/00; of elements for cooperage or wheel making B27H (presses therefor B27D 3/00)).
B27M 3/18  of furniture (or of doors (B27D 5/003 takes precedence))
B27M 3/34  of cases, trunks, or boxes, of wood or equivalent material which cannot satisfactorily be bent without softening (nailing or stapling in general B25C, B27F; of cardboard, paper, or similarly workable material B31B)(Manufacture of cleats therefor (manufacture of tubes, coops or barrels B27D 1/00, B27D 1/08; by folding grooved panels B27G 5/00))

Project: N/A (B28B)

U B28B 1/00 Producing shaped (prefabricated) articles from the material (using presses B28B 3/00; shaping on moving conveyers B28B 5/00; producing tubular articles B28B 21/00; { producing articles with embedded elements B28B 23/00})
B28B 1/08  by vibrating or jolting {((of moulding sand B22C 15/10; of concrete in general E04G 21/063))}
B28B 1/24  by injection moulding {((injection moulding of ceramic slips B28B 1/265; of tubular articles B28B 21/38))}
B28B 1/29  by profiling or stricking the material in open moulds or on moulding surfaces {((in rotary moulds B28B 1/02; by means of profiled rollers B28B 3/12, B28B 3/123))}
U B28B 1/30  by applying the material on to a core or other moulding surface to form a layer thereon (to form a permanent layer B28B 19/00)
U B28B 1/32  · · by projecting, e.g. spraying (spraying in general B05B, B05D)
B28B 1/34  · · by centrifugal force {((centrifugally acting implements for applying plaster or the like to walls E04F 21/10))}
U B28B 3/00 Producing shaped articles from the material by using presses (shaping on moving conveyers B28B 5/00; Presses specially adapted therefor (presses in general B30B)
B28B 3/20  · wherein the material is extruded {((extrusion moulding of plastics B29C 47/00))}
U B28B 7/00 Moulds; Cores; Mandrels (specially adapted for the production of the tubular articles B28B 21/00; { for casting metals B22C 9/00; moulds for plastic materials in general B29C 33/00; falsework, forms or shutterings for forming buildings or parts thereof in situ E04G 9/00 to E04G 15/00))
B28B 7/28  · Cores; Mandrels {((B28B 1/44 takes precedence; of special materials in general B28B 7/34; cores for making blind holes in situ E04G 15/04; for making recesses E04G 15/06))}
B28B 7/30  · · adjustable, collapsible, or expanding {((for making tubular objects B28B 21/88))}
B28B 7/32  · · inflatable {((connection of valves to inflatable elastic bodies B60C 29/00))
U B28B 7/40  · · characterised by means for modifying the properties of the moulding material
B28B 7/44  · · for treating with gases or degassing, e.g. for de-aerating {((treating with hot gases or vapour B28B 7/42))
U B28B 17/00 Details of, or accessories for, apparatus for shaping the material; Auxiliary measures taken in connection with such shaping (moulds B28B 7/00; after-treatment B28B 11/00; feeding or discharging B28B 13/00; arrangements for embedding elements in the material B28B 23/00; details, accessories, or auxiliary measures special to any one type of shaping, machine or method of shaping, see the relevant groups for such machines or methods)
B28B 17/02  · Conditioning the material prior to shaping {((for mixtures containing clay or cement B28C))}
**Project: N/A (B28B)**

U B28B 21/00 Methods or machines specially adapted for the production of tubular articles

B28B 21/76 · Moulds (for slip-casting B28B 21/08)

U B28B 23/00 Arrangements specially adapted for the production of shaped articles with elements wholly or partly embedded in the moulding material; {Production of reinforced objects} (B28B 21/00 takes precedence; in units for prefabricated buildings B28B 7/22)

B28B 23/02 · wherein the elements are reinforcing members (B28B 23/006 takes precedence)

**Project: N/A (B28C)**

U B28C 5/00 Apparatus or methods for producing mixtures of cement with other substances, e.g. slurries, mortars, porous or fibrous compositions (controlling the mixing apparatus and supplying the ingredients B28C 7/00 (separating cement from waste concrete B03B 9/063))

U B28C 5/08 · using driven mechanical means affecting the mixing (B28C 5/40, B28C 5/42, B28C 5/48 take precedence; in combination with the action of a fluid B28C 5/38)

U B28C 5/10 · · Mixing in containers not actuated to effect the mixing

U B28C 5/12 · · · with stirrers sweeping through the materials (e.g. with incorporated feeding or discharging means or with oscillating stirrers)

B28C 5/14 · · · · the stirrers having motion about a horizontal or substantially horizontal axis (with feeding or discharging means B28C 5/12)

B28C 5/16 · · · · the stirrers having motion about a vertical or steeply inclined axis (with feeding or discharging means B28C 5/12)

B28C 7/00 Controlling the operation of apparatus for producing mixtures of clay or cement with other substances; Supplying or proportioning the ingredients for mixing clay or cement with other substances; Discharging the mixture (B28C 5/42 takes precedence; feeding material in general B65G; proportioning in general G01F, G01G; controlling in general G05)

B28C 7/04 · · Supplying or proportioning the ingredients (B28C 7/022 takes precedence; forming a predetermined ratio of the components to be mixed, in general B01F 15/04)

B28C 9/00 General arrangement or layout of plant (B28C 7/0061, B28C 7/0481 take precedence)

**Project: N/A (B28D)**

U B28D 7/00 Accessories specially adapted for use with machines or devices of the preceding groups (B28D 5/0058 takes precedence)

B28D 7/04 · for supporting or holding work (or conveying or discharging work (B28D 1/047, B28D 5/0041, B28D 5/0052 take precedence)

**Project: RP0055 (B29B)**

U B29B 2911/00 Indexing scheme related to making preforms for blow-moulding bottles or the like (not used)

U B29B 2911/14 · · Layer configuration, geometry, dimensions or physical properties of preforms for blow-moulding bottles or the like (not used)

U B29B 2911/1432 · · Geometry (not used)
C B29B 2911/14326 · · · Variable wall thickness

**WARNING**

Group B29B 2911/14326 is impacted by reclassification into groups B29B 2911/14328 - B29B 2911/14332. Groups B29B 2911/14326 and B29B 2911/14328 - B29B 2911/14332 should be considered in order to perform a complete search.

N B29B 2911/14328 · · · at neck portion
N B29B 2911/1433 · · · at flange portion
N B29B 2911/14331 · · · at body portion
N B29B 2911/14332 · · · at bottom portion
C B29B 2911/14333 · · · Variable diameter

**WARNING**

Group B29B 2911/14333 is impacted by reclassification into groups B29B 2911/14335 - B29B 2911/14338. Groups B29B 2911/14333 and B29B 2911/14335 - B29B 2911/14338 should be considered in order to perform a complete search.

N B29B 2911/14335 · · · at neck portion
N B29B 2911/14336 · · · at flange portion
N B29B 2911/14337 · · · at body portion
N B29B 2911/14338 · · · at bottom portion
C B29B 2911/14334 · · · Ribs or protrusions

**WARNING**

Group B29B 2911/1434 is impacted by reclassification into groups B29B 2911/14341 - B29B 2911/14345. Groups B29B 2911/1434 and B29B 2911/14341 - B29B 2911/14345 should be considered in order to perform a complete search.

N B29B 2911/14341 · · · at neck portion
N B29B 2911/14343 · · · at flange portion
N B29B 2911/14344 · · · at body portion
N B29B 2911/14345 · · · at bottom portion
C B29B 2911/14346 · · · Internal separating wall

**WARNING**

Group B29B 2911/14346 is impacted by reclassification into groups B29B 2911/14348 - B29B 2911/14352. Groups B29B 2911/14346 and B29B 2911/14348 - B29B 2911/14352 should be considered in order to perform a complete search.

N B29B 2911/14348 · · · at neck portion
N B29B 2911/1435 · · · at flange portion
N B29B 2911/14351 · · · at body portion
N B29B 2911/14352 · · · at bottom portion
Handling, e.g. feeding of the material to be shaped, (storage of plastics material before moulding; Automation, i.e. automated handling lines in plastics processing plants, e.g. using manipulators or robots (discharging moulded articles from the mould B29C 37/0003; storage of preregs or SMC after impregnation or during ageing B29C 70/54; baling of rubber B29B 15/02; in general B65G))

- Dispensing from vessels, e.g. hoppers, (into a mould cavity B29C 31/04; large containers characterised by discharge means B01F 15/0216, B01F 15/0454, B29B 7/24, B29B 7/603; in general G01F)

- Feeding of the material to be moulded, e.g. into a mould cavity, (B29C 39/08 takes precedence; using a material distribution system to two or more fixed injection moulds B29C 45/125; to presses in general B30B 15/30)

- in measured doses, e.g. by weighting, (feeding mixers with measured doses B01F 15/0216, B01F 15/0454, B29B 7/24, B29B 7/603; in general G01F)

- of preforms (to be moulded, e.g. tablets, fibre reinforced preforms, extruded ribbons, tubes or profiles; Manipulating means specially adapted for feeding preforms, e.g. supports conveyers (B29C 31/066, B29C 37/001, B29C 43/085 take precedence))

**NOTE**
Documents describing feeding preforms, e.g. parisons, tubes, sheets in connection with shaping techniques described in groups B29C 49/00 to B29C 65/00 are not classified in group B29C 31/08, but in the relevant groups of these techniques

**U** B29C 33/00 Moulds or cores; Details thereof or accessories therefor

- with incorporated heating or cooling means

- using liquids, gas or steam, (tyre moulds with incorporated heating or cooling means using liquids, gas or steam B29D 30/0601)

- with incorporated means for positioning inserts, e.g. labels, (positioning reinforcements B29C 70/541)

- Mounting, exchanging or centering (moulds, mould parts or cores; B29C 33/485 takes precedence)

- movable, e.g. to or from the moulding station

- continuously movable in one direction, e.g. in a closed circuit, (B29C 49/0021 takes precedence)

- with means for, or specially constructed to facilitate, the removal of articles, e.g. of undercut articles

- with means for collapsing or disassembling

- elastic (or flexible) for isostatic pressing (B29C 43/3642)

- soluble or fusible, (in particular used in injection moulding B29C 45/4457)

- Coatings, e.g. enamelled, galvanised; Releasing, lubricating or separating agents, (in-mould coating B29C 37/0028; using or applying separating agents B29C 37/0067)

- Releasing, lubricating or separating agents, (in general C10M)

- Maintenance

- Cleaning, (extruder parts B29C 47/0877; in general B08B 7/00)

**U** B29C 35/00 Heating, cooling or curing, e.g. crosslinking, vulcanising; Apparatus therefor (moulds with incorporated heating or cooling means B29C 33/02; thermal after-treatment of shaped articles B29C 71/02; curing devices for plastic dental prostheses A61C 13/14; before moulding B29B 13/00; Chemical aspects C08J 3/00)
B29C 35/02  Heating or curing, e.g. crosslinking, vulcanising (during moulding, e.g. in a mould) (cold vulcanisation B29C 35/18; (vulcanising tyres, presses therefor B29D 30/0611))

B29C 35/08  by wave energy or particle radiation ((B29C 67/0051, B29C 71/04 take precedence))

B29C 35/16  Cooling ((cooling extruded material B29C 47/8815; cooling preforms for blow moulding B29C 49/6427; cooling blown articles B29C 49/66; cooling tyres during post cure inflation B29D 30/0643))

B29C 35/08  by wave energy or particle radiation ((B29C 67/0051, B29C 71/04 take precedence))

B29C 35/16  Cooling ((cooling extruded material B29C 47/8815; cooling preforms for blow moulding B29C 49/6427; cooling blown articles B29C 49/66; cooling tyres during post cure inflation B29D 30/0643))

B29C 37/00  Component parts, details, accessories or auxiliary operations, not covered by group B29C 33/00 or B29C 35/00

B29C 39/02  Deburring or deflashing (by grinding or polishing B24B) ((thermal deburring in general B23D 79/005))

B29C 37/02  Deburring or deflashing (by grinding or polishing B24B) ((thermal deburring in general B23D 79/005))

B29C 39/02  Deburring or deflashing (by grinding or polishing B24B) ((thermal deburring in general B23D 79/005))

NOTE
Attention is drawn to Note (3) following the subclass title.

B29C 39/00  Shaping by casting, i.e. introducing the moulding material into a mould or between confining surfaces without significant moulding pressure; Apparatus therefor (B29C 41/00 takes precedence)

B29C 39/02  for making articles of definite length, i.e. discrete articles

B29C 39/10  incorporating preformed parts or layers, e.g. casting around inserts or for coating articles ((coating a surface by casting in general B05D 1/30, B29C 39/126 takes precedence))

B29C 39/12  Making multilayered or multicoloured articles ((B29C 39/021 takes precedence))

B29C 39/14  for making articles of indefinite length ((by depositing material on a substrate and stripping off the shaped article B29C 41/24))

B29C 39/18  incorporating preformed parts or layers, e.g. casting around inserts or for coating articles ((B29C 39/206 takes precedence))

B29C 39/20  Making multilayered or multicoloured articles ((B29C 39/142 takes precedence))

U B29C 39/22  Component parts, details or accessories; Auxiliary operations

U B29C 39/26  Moulds or cores

B29C 39/28  with means to avoid flashes ((B29C 39/30 takes precedence))

B29C 39/40  Compensating volume change, e.g. retraction ((in general B29C 37/005))

B29C 41/00  Shaping by coating a mould, core or other substrate, i.e. by depositing material and stripping-off the shaped article; Apparatus therefor (with compacting pressure B29C 43/00; by lay-up of reinforcement of substantial or continuous length B29C 70/30)

U B29C 41/02  for making articles of definite length, i.e. discrete articles

B29C 41/08  Coating a former, core or other substrate by spraying or fluidisation, e.g. spraying powder ((spray-up of reinforcing fibres B29C 70/305))

B29C 41/14  Dipping a core ((B29C 41/10 takes precedence))

U B29C 43/00  by depositing material and stripping-off the shaped article; Apparatus therefor (with compacting pressure B29C 43/00; by lay-up of reinforcement of substantial or continuous length B29C 70/30)

U B29C 41/34  Component parts, details or accessories; Auxiliary operations

U B29C 41/42  Removing articles from moulds, cores or other substrates ((B29C 33/444 and B29C 37/0017 take precedence))
U B29C 43/00  Compression moulding, i.e. applying external pressure to flow the moulding material; Apparatus therefor (by liberation of internal stresses B29C 61/006); shaping or impregnating by compression composites comprising reinforcements other than fibres of short length [B29C 70/12]; presses in general B30B)

- B29C 43/02  · of articles of definite length, i.e. discrete articles ((B29C 35/0227 takes precedence))
- B29C 43/10  · · Isostatic pressing, i.e. using non-rigid pressure-exerting members against rigid parts or dies ((in general B30B 11/001))
- B29C 43/12  · · using bags surrounding the moulding material (or using membranes contacting the moulding material (B29C 70/44 takes precedence); flexible cores for vulcanizing tyres B29D 30/0654)
- B29C 43/18  · · incorporating preformed parts or layers, e.g. compression moulding around inserts or for coating articles ((B29C 43/20 takes precedence))
- B29C 43/20  · · Making multilayered or multicoloured articles ((B29C 43/14 takes precedence))
- B29C 43/22  · · of articles of indefinite length ((for articles with reinforcements of substantial or continuous length B29C 70/50))
- B29C 43/30  · · Making multilayered or multicoloured articles ((B29C 43/26 takes precedence))

U B29C 43/32  · Component parts, details or accessories; Auxiliary operations

- B29C 43/34  · · Feeding the material to the mould or the compression means ((B29C 43/085 takes precedence))

U B29C 43/36  · · Moulds for making articles of definite length, i.e. discrete articles
- B29C 43/38  · · with means to avoid flashes ((B29C 43/40 takes precedence))
- B29C 43/58  · · Measuring, controlling or regulating ((for bank adjustment in calendering B29C 43/245))

U B29C 44/00  Shaping by internal pressure generated in the material, e.g. swelling, foaming; (Producing porous or cellular expanded plastics articles)

WARNING

Group B29C 44/00 and subgroups are not complete, see also B29C 67/22 and subgroups

U B29C 44/02  · · for articles of definite length, i.e. discrete articles

U B29C 44/04  · · consisting of at least two parts of chemically or physically different materials, e.g. having different densities

- B29C 44/06  · · Making multilayered articles ((B29C 44/0407 - B29C 44/0492 take precedence))

U B29C 44/12  · · Incorporating or moulding on preformed parts, e.g. inserts, reinforcements
- B29C 44/14  · · the preformed part being a lining ((B29C 44/1209 takes precedence))
- B29C 44/18  · · Filling preformed cavities ((B29C 44/1204 takes precedence))

U B29C 44/20  · · for articles of indefinite length
- B29C 44/23  · · Expanding the moulding material between endless belts or rollers ((B29C 44/203 takes precedence))

U B29C 44/34  · · Auxiliary operations
- B29C 44/36  · · Feeding the material to be shaped ((B29C 44/0492 takes precedence))
- B29C 44/38  · · into a closed space, i.e. to make articles of definite length ((B29C 44/365 and B29C 44/367 take precedence))
... into an open space or onto moving surfaces, i.e. to make articles of indefinite length ((B29C 44/365, B29C 44/367 take precedence))

· · · · by gravity, e.g. casting onto, or between, moving surfaces ((B29C 44/468 takes precedence))

· · · · using pressure difference, e.g. by extrusion, by spraying ((B29C 44/468 takes precedence))

**U B29C 45/00** Injection moulding, i.e. forcing the required volume of moulding material through a nozzle into a closed mould; Apparatus therefor (injection blow-moulding **B29C 49/06**)

**U B29C 45/03** · Injection moulding apparatus (transfer moulding **B29C 45/02**)

**B29C 45/12** · incorporating preformed parts or layers, e.g. injection moulding around inserts or for coating articles ((B29C 45/076 takes precedence))

**B29C 45/14** · Making multilayered or multicoloured articles ((B29C 45/0062 takes precedence; feeding colouring materials into the injection unit B29C 45/1816))

**B29C 45/1679** · (applying surface layers onto injection-moulded substrates inside the mould cavity, e.g. in-mould coating (IMC) (applying suface layers after ejection B29C 45/0053))

**U B29C 45/17** · Component parts, details or accessories; Auxiliary operations

**B29C 45/20** · · Injection nozzles ((B29C 45/1603 takes precedence))

**U B29C 45/26** · · Moulds

**U B29C 45/27** · · · Sprue channels (Runner channels or runner nozzles)

**U B29C 45/2737** · · · · (Heating or cooling means therefor (B29C 45/7331 takes precedence))

**B29C 2045/2754** · · · · · Plurality of independent heating or cooling means, e.g. independently controlling the heating of several zones of the nozzle, (B29C 2045/2753 takes precedence))

**B29C 45/46** · · Means for plasticising or homogenising the moulding material or forcing it into the mould ((combined with mould opening, closing or clamping devices B29C 45/70))

**U B29C 45/53** · · · using injection ram or piston

**B29C 45/54** · · · and plasticising screw ((B29C 45/532 takes precedence))

**B29C 45/56** · · · using mould parts movable during or after injection, e.g. injection-compression moulding ((B29C 45/1705 and B29C 45/572 take precedence))

**B29C 45/57** · · · Exerting after-pressure on the moulding material ((B29C 45/174 takes precedence))

**B29C 45/64** · · Mould opening, closing or clamping devices ((combined with means for plasticising or homogenising B29C 45/70))

**U B29C 45/72** · · · Heating or cooling

**B29C 45/73** · · · · of the mould ((B29C 45/2642 and B29C 45/2737 take precedence))

**B29C 45/76** · · · Measuring, controlling or regulating ((measuring in general G01; controlling or regulating in general G05))

NOTE
In groups B29C 45/76 to B29C 45/80 it is desirable to add the indexing codes of B29C 2945/76 relating to measuring, controlling or regulating in injection moulding

**B29C 45/84** · · Safety devices ((B29C 45/7626 takes precedence))
Extrusion moulding, i.e. expressing the moulding material through a die or nozzle which imparts the desired form; Apparatus therefor (extrusion blow-moulding B29C 49/04; extrusion presses in general B30B 11/22)

Component parts, details or accessories; Auxiliary operations

Multi-port extrusion nozzles (for making granules in the form of filamentary material B29B 9/06)

Conveyors for extruded material (B29C 47/0898 takes precedence)

Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die

Details

{screws}(screws characterized by the material or by their manufacturing process B29C 47/0844)

having incorporated mixing devices (B29C 47/6006 to B29C 47/627 take precedence)

Blow-moulding, i.e. blowing a preform or parison to a desired shape within a mould; Apparatus therefor (extrusion moulding of tubular films B29C 47/0026; enlarging tube ends using pressure difference B29C 57/08)

Combined blow-moulding and manufacture of the preform or the parison

Injection blow-moulding (introducing a fluid into the interior of the injected material which is still in a molten state B29C 45/1704)

Biaxial stretching during blow-moulding (with or without prestretching)

using pressure difference (for prestretching), e.g. pre-blowing (B29C 49/649 takes precedence)

Blow-moulding apparatus

having movable moulds or mould parts

mounted on movable endless supports (B29C 49/0021 takes precedence)

Component parts, details or accessories; Auxiliary operations

Blowing means (B29C 45/1734 takes precedence)

Shaping by thermoforming, i.e. shaping sheets or sheet like preforms after heating), e.g. shaping sheets in matched moulds or by deep-drawing; Apparatus therefor (blow moulding of tubular preforms B29C 49/00, deforming of tubular or hollow preforms B29C 67/0014)

Shaping by bending, folding, twisting, straightening or flattening; Apparatus therefor (B29C 61/10 takes precedence)

Bending or folding (B29C 53/22, B29C 53/34, B29C 53/36, B29C 53/56 take precedence)

of plates or sheets (B29C 63/04 takes precedence; bending or folding paper B31F 1/0003; folding films B65H 45/00)

of blown tubular films, e.g. gussetting (flattening blown films during extrusion moulding B29C 47/0009)

helically, e.g. for making springs (for textile fibres D02G 1/00)

Twisting (for textile fibres D01H)

Winding and joining, e.g. winding spirally (winding in general B65H)

Shaping by stretching, e.g. drawing through a die; Apparatus therefor (B29C 61/08 takes precedence)

of tubes (B29C 61/08 takes precedence)
B29C 55/28  · of blown tubular films, e.g. by inflation \{(extrusion moulding of tubular films B29C 47/0009)\}

B29C 55/30  · Drawing through a die \{(pultrusion B29C 70/52)\}

U B29C 57/00  Shaping of tube ends, e.g. flanging, belling, closing; Apparatus therefor, \{e.g. collapsible mandrels\}

U B29C 57/02  · Belling or enlarging, e.g. combined with forming a groove

B29C 57/04  · · using mechanical means \{(B29C 57/025 takes precedence)\}

B29C 59/00  Surface shaping \{of articles\} e.g. embossing; Apparatus therefor \{\{in-mould printing B29C 37/0025 \}; by using liquids B29C 71/0009 \}; by using gases without chemical reaction B29C 71/0009 \}; for decorating in general B44 \}; abrasive blasting B24C \}; chemical aspects C08J 7/0009 \};

B29C 59/02  · by mechanical means, e.g. pressing \{(B29C 59/007 takes precedence; embossing expanded porous articles B29C 44/5627)\}

B29C 59/06  · · using vacuum drums \{(for thermoforming B29C 51/225)\}

B29C 59/16  · by wave energy or particle radiation, \{e.g. infra-red heating (B29C 59/007 takes precedence)\}

U B29C 61/00  Shaping by liberation of internal stresses; Making preforms having internal stresses; Apparatus therefor \{(for surface shaping B29C 59/18 \}; for lining articles B29C 63/38 \}; for joining preformed parts B29C 65/66 \{(for packaging B65B 53/00 \}; connecting arrangements or other fittings for plastics pipes using shrink-down material F16L 47/22 \}; electrical connections insulated using heat shrinking insulating sleeves H01R 4/72 \}; cable junctions protected by sleeves H02G 15/18)\}

U B29C 61/06  · Making preforms having internal stresses, e.g. plastic memory

B29C 61/08  · · by stretching tubes \{(in general B29C 55/22, B29C 55/28)\}

B29C 61/10  · · by bending plates or sheets \{(in general B29C 53/36)\}

U B29C 63/00  Lining or sheathing, i.e. applying preformed layers or sheathing of plastics; Apparatus therefor \{(B29C 73/00 takes precedence; by blowing B29C 49/00 \}; by thermoforming B29C 51/00)\}

U B29C 63/26  · Lining or sheathing of internal surfaces \{(B29C 63/38 takes precedence)\}

U B29C 63/34  · · using tubular layers or sheathings

B29C 63/36  · · · being turned inside out \{(for flatic tubes in general B29C 67/0018)\}

U B29C 65/00  Joining \{or sealing\} of preformed parts, \{e.g. welding of plastics materials\}; Apparatus therefor \{(general aspects of processes or apparatus for joining preformed parts B29C 66/00 \}; using porous material formed by internal pressure generated therein for joining preformed parts B29C 44/1228, B29C 44/326 \}; for making boxes, cartons, envelopes or bags B31B \}; for sealing or securing package folds or closures B65B 51/00 \}; joining constructional elements in general F16B \}; splicing of light guides G02B 6/255)\}

WARNING Groups B29C 65/00 to B29C 65/70 are not complete, mainly for documents published before the year 1995, pending reclassification; see also B29C 65/74 and its subgroups

U B29C 65/02  · by heating, with or without pressure

WARNING Group B29C 65/02 and subgroups are not complete, pending a reorganisation; see also B29C 65/48 and its subgroups
B29C 65/06  · · using friction, e.g. spin welding {((non-plastics elements to plastic elements B29C 65/645))}

WARNING
Subgroups of B29C 65/06 are not complete, pending a reorganisation; see also this group and its subgroups

B29C 65/08  · · using ultrasonic vibrations {((non-plastics element to plastics elements B29C 65/645))}

WARNING
Subgroups of B29C 65/08 are not complete pending reclassification; see also this group and its other subgroups

B29C 65/14  · · using wave energy {, i.e. electromagnetic radiation,} or particle radiation {((using mechanical waves B29C 65/06; using ultrasonic waves B29C 65/08; pressing means transparent to electromagnetic radiation B29C 66/8167))}

WARNING
Subgroups B29C 65/1403 to B29C 65/1496 are not complete pending a reorganisation; see also this group and its subgroups

U B29C 65/18  · · using heated tools

B29C 65/22  · · · Heated wire {resistive ribbon, resistive band or resistive strip {electrical insulating support therefor B29C 66/81871)}

WARNING
Subgroups of B29C 65/22 are not complete, pending reclassification; see also this group

B29C 65/24  · · · characterised by the means for heating the tool {((by impulse heating B29C 65/38))}

NOTES
1. Classification is made in groups B29C 65/24 to B29C 65/32 only if the details or adaptations of the heating means are of interest.
2. When classifying in this group, heated tools are additionally classified in groups B29C 65/18, B29C 65/20 or B29C 65/22

U B29C 65/40  · · Applying molten plastics, e.g. hot melt (using welding bar {combined with hot gases} B29C 65/12 ; by moulding B29C 65/70)

B29C 65/42  · · · between pre-assembled parts {((B29C 65/605 takes precedence)}

U B29C 65/48  · using adhesives {, i.e. using supplementary joining material} {heat-activated {to be additionally classified in} B29C 65/02 (and subgroups); {applying molten plastics, e.g.} hot melts {to be additionally classified in} B29C 65/40 ; non-mechanical parts of adhesive processes, in general C09J 5/00 ; {solvent bonding}}

NOTE
When classifying in this group, heat-activated adhesives are further classified in group B29C 65/02. When classifying in this group, applying molten plastics is further classified in group B29C 65/40.

WARNING
Subgroups B29C 65/4805 to B29C 65/4895 are not complete, pending a reorganisation; see also this group and B29C 65/4895

B29C 65/50  · · using adhesive tape {e.g. thermoplastic tape; using threads or the like {B29C 65/3444 takes precedence)}
Means for handling the parts to be joined, e.g. for making containers or hollow articles (e.g. means for handling sheets, plates, web-like materials, tubular articles, hollow articles or elements to be joined therewith; Means for discharging the joined articles from the joining apparatus)

**WARNING**

Subgroups of B29C 65/78 are not complete, pending a reorganisation; see also this group and its subgroups and B29C 65/20 and its subgroups.

- Means for positioning the parts to be joined (e.g. aligning, indexing or centring)
- Means for handling the parts to be joined comprising positioning features
- In the form of inter-cooperating positioning features (holding or clamping means cooperating with specially formed features of at least one of the parts to be joined B29C 65/7844, e.g. tenons and mortises (tenon and mortise joints B29C 66/126; tongue and groove joints B29C 66/124))
- Rotatable transfer means (for loading or unloading purposes, i.e. turret transfer means B29C 65/7879 takes precedence; in-line machines using carriers, provided with holding means, said carriers moving in a closed path B29C 65/7867; in-line machines using conveyer belts or conveyer chains B29C 65/787)

**General aspects of processes or apparatus for joining preformed parts**

- General aspects of joining substantially flat articles, e.g. plates, sheets or web-like materials; Making flat seams in tubular or hollow articles; Joining single elements to substantially flat surfaces

**WARNING**

Group B29C 66/00 and subgroups are not complete, pending a reorganisation; see also B29C 65/00 and its subgroups.

- Joining substantially flat articles (B29C 66/47 and subgroups take precedence); Making flat seams in tubular or hollow articles (B29C 66/51 and subgroups take precedence)

**Shaping techniques not covered by groups B29C 39/00 to B29C 65/00, B29C 70/00 or B29C 73/00**

- Moulding by agglomerating (B29C 67/0051, B29C 67/20 take precedence)
- Coagulating (selective coagulating for rapid manufacturing or prototyping of 3D objects B29C 67/0055)
- For porous or cellular articles, e.g. of foam plastics, coarse-pored (chemical aspects of working up macro-molecular substances to porous or cellular articles C08J 9/00)

- Characterised by the choice of material
- Moulding high reactive monomers or prepolyomers, e.g. by reaction injection moulding (RIM), liquid injection moulding (LIM) (casting monomers B29C 39/006, mixing construction B29B 7/74)
Shaping composites, i.e. plastics material comprising reinforcements, fillers or preformed parts, e.g. inserts (chemical aspects C08, e.g. C08J 5/00)

NOTE
In this group, the following terms or expressions are used with the meanings indicated:
- "reinforcement" means a structure in the form of fibres, wires, rods, bars, sections, plates or blocks, which improves the strength of an article;
- "filler" means a relatively inert substance in the form of particles, powder, beads, flakes or spheres, which improves the physical properties or increases the bulk or weight of an article;
- "preformed part" means a part made of any material, being completely shaped to have a determined form and which is not used as a reinforcement, e.g. wires or nets forced only into the surface of an article;
- "insert" means a preformed part incorporated in an article during moulding.

U B29C 70/04 · comprising reinforcements only, e.g. self-reinforcing plastics
U B29C 70/06 · · Fibrous reinforcements only
U B29C 70/10 · · · characterised by the structure of fibrous reinforcements, (e.g. hollow fibres)
B29C 70/12 · · · · using fibres of short length, e.g. in the form of a mat (e.g. non-woven fabrics per se D04H 1/00)
B29C 70/16 · · · · using fibres of substantial or continuous length (e.g. non-woven fabrics per se D04H 3/00)
B29C 70/20 · · · · oriented in a single direction, e.g. roofing or other parallel fibres (B29C 70/083, B29C 70/226 take precedence)
B29C 70/202 · · · · · (arranged in parallel planes or structures of fibres crossing at substantial angles, e.g. cross-moulding compound (XMC) (B29C 70/207 takes precedence))
B29C 70/22 · · · · · oriented in at least two directions forming a two dimensional structure (woven fabrics per se D03D; knitted fabrics per se D04D; braid per se D04C)
B29C 70/26 · · Non-fibrous reinforcements only (B29C 35/0272, B29C 61/0625, B29C 70/887 take precedence; combined with fibres B29C 70/23)
U B29C 70/28 · · Shaping operations therefor
NOTES
1. This group covers:
   - the shaping of a coherent fibrous reinforcements which are pre-impregnated or without binder; or of non-coherent reinforcements of fibres in a mould or on a support;
   - the impregnation or introduction of a plastics matrix in reinforcements during shaping;
2. This group does not cover:
   - the moulding by a single technique of plastics matrix material mixed with and containing reinforcing fibres of short length, which is covered by the appropriate place for that technique;
   - the pretreatment, e.g. impregnation, of reinforcements per se, i.e. independently of their shaping, which is covered by group B29B 15/08
B29C 70/30 · · · Shaping by lay-up, i.e. applying fibres, tape or broadsheet on a mould, former or core; Shaping by spray-up, i.e. spraying of fibres on a mould, former or core (by winding and joining, e.g. filament winding B29C 53/56; for building tyres B29D 30/08)
B29C 70/38 · · · · · Automated lay-up, e.g. using robots, laying filaments according to predetermined patterns (application heads for tyres B29D 30/28)
B29C 70/54 Component parts, details or accessories; Auxiliary operations, (e.g. feeding or storage of prepregs or SMC after impregnation or during ageing, (pretreatment, e.g. impregnation, of reinforcements B29B 15/08))

B29C 70/58 comprising fillers only, (e.g. particles, powder, beads, flakes, spheres (B29C 70/025 takes precedence, agglomerating hollow spheres to produce synthetic foam B29C 70/66; compounding ingredients per se C08K))

NOTE
Moulding of plastics matrix material mixed with fillers by a single technique is classified in the appropriate place for that technique.

B29C 70/68 by incorporating or moulding on preformed parts, e.g. inserts, layers, (e.g. foam blocks (mould constructions therefor B29C 33/12; joining preformed parts by moulding B29C 65/70))

NOTE
This group does not cover:
- incorporating, or moulding on, preformed parts by a single technique, which is covered by the appropriate place for that technique;
- pretreatment of preformed parts per se, i.e. independently of their shaping, which is covered by group B29B 15/00

B29C 70/70 Completely encapsulating inserts (B29C 70/86 takes precedence)

B29C 70/72 Encapsulating inserts having non-encapsulated projections, e.g. extremities, terminal portions of electrical components (B29C 70/742 takes precedence)

B29C 70/74 Moulding material on a relatively small portion of the preformed part, e.g. outsert moulding (B29C 70/845 takes precedence)

B29C 70/78 Moulding material on one side only of the preformed part

B29C 70/80 Moulding sealing material into closure members (placing sealings in closures B21D 51/46)

B29C 70/84 by moulding material on preformed parts to be joined (joining plastic parts by moulding B29C 65/70)

U B29C 71/00 After-treatment of articles without altering their shape; Apparatus therefor (B29C 73/00 takes precedence; surface shaping B29C 59/00; for joined or sealed parts B29C 66/03; after-treatment specially adapted for vulcanising tyres B29D 30/0633; chemical aspects C08J 7/00)

B29C 71/02 Thermal after-treatment (B29C 71/0063 and B29C 71/0072 take precedence)

B29C 71/04 by wave energy or particle radiation, (e.g. for curing or vulcanising preformed articles (during moulding, e.g. in a mould B29C 35/08))

Project: N/A (B29K)

B29K 2001/00 Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as moulding material (as such C08L 1/00)

B29K 2007/00 Use of natural rubber as moulding material (as such C08L 7/00)

B29K 2009/00 Use of rubber derived from conjugated dienes, as moulding material (as such C08L 9/00)

B29K 2023/00 Use of polyalkenes (or derivatives thereof) as moulding material (as such C08L 23/00)

B29K 2023/18 Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such C08L 23/18)

B29K 2025/00 Use of polymers of vinyl-aromatic compounds (or derivatives thereof) as moulding material (as such C08L 25/00)
Use of polyvinylhalogenides {or derivatives thereof} as moulding material {{as such C08L 27/00}}

- containing fluorine {{as such C08L 27/12}}
- PTFE, i.e. polytetrafluorethene {{as such C08L 27/18}, e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}

Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals {or derivatives thereof} as moulding material {{as such C08L 29/00}}

- · PTFE, i.e. polytetrafluorethene {{as such C08L 27/18}, e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}

Use of polyvinylesters {or derivatives thereof} as moulding material {{as such C08L 31/00}}

Use of polymers of unsaturated acids or derivatives thereof as moulding material {{as such C08L 33/00}} {{B29K35/00 takes precedence}}

- · Polymers of esters {{as such C08L 33/04}}
- · Polymers of nitriles {{as such C08L 33/18}}
- · · PAN, i.e. polycrylonitrile {{as such C08L 33/20}}

Use of polymers of unsaturated polycarboxylic acids {or derivatives thereof} as moulding material {{as such C08L 35/00}}

Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins {or derivatives thereof}, as moulding material {{as such C08L 45/00}}

Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K23/00 to {B29K49/00}, as moulding material {{as such C08L 55/00}}

- · ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers {{as such C08L 55/02}}

Use of polycetals {e.g. POM, i.e. polyoxymethylene; or derivatives thereof}, as moulding material {{as such C08L 59/00}}

Use of condensation polymers of aldehydes or ketones {or derivatives thereof} as moulding material {{as such C08L 61/00}}

- · Phenoplasts {{as such C08L 61/04}}
- · Aminoplasts {{as such C08L 61/20}}

Use of {EP, i.e.}epoxy resins {or derivatives thereof} as moulding material {{as such C08L 63/00}}

Use of polyesters {or derivatives thereof} as moulding material {{as such C08L 67/00}}

Use of {PC, i.e.}polycarbonates {or derivatives thereof} as moulding material {{as such C08L 69/00}}

Use of polyethers, {e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof} as moulding material {{as such C08L 71/00}}

Use of other polymers having oxygen as the only hetero atom in the main chain as moulding material {{as such C08L 73/00}}

Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof} as moulding material {{as such C08L 75/00}}
Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain, not provided for in groups B29K61/00 to B29K77/00, as moulding material (as such C08L 79/00)

Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as moulding material (as such C08L 81/00)

Use of polymers having silicon, with or without sulfur, oxygen, or carbon only, in the main chain, as moulding material (as such C08L 83/00)

Use of polymers having other elements (than silicon, sulfur, nitrogen, oxygen, and carbon) in the main chain, as moulding material (as such C08L 85/00)

Use of waxes as moulding material (as such C08L 91/06)

Use of bituminous materials as moulding material (as such C08L 95/00)

Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as reinforcement (as such C08L 1/00)

Use of natural rubber as reinforcement (as such C08L 7/00)

Use of rubber derived from conjugated dienes as reinforcement (as such C08L 9/00)

Use of polyalkenes (or derivatives thereof) as reinforcement (as such C08L 23/00)

Use of polymers of vinyl-aromatic compounds (or derivatives thereof) as reinforcement (as such C08L 25/00)

Use of polyvinylhalogenides (or derivatives thereof) as reinforcement (as such C08L 27/00)

Use of polymers of unsaturated acids or derivatives thereof as reinforcement (as such C08L 33/00)

Use of polymers of unsaturated polycarboxylic acids (or derivatives thereof) as reinforcement (as such C08L 35/00)
Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins (or derivatives thereof), as reinforcement (as such C08L 45/00)

Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K225/00 to B29K 2249/00, e.g. having a vinyl group, as reinforcement (as such C08L 55/00)

ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers (as such C08L 55/02)

Use of polyacetals (e.g. POM, i.e. polyoxymethylene; or derivatives thereof), as reinforcement (as such C08L 59/00)

Use of condensation polymers of aldehydes or ketones (or derivatives thereof), as reinforcement (as such C08L 61/00)

Phenoplasts (as such C08L 61/04)

Aminoplasts (as such C08L 61/20)

Use of {EP, i.e.} epoxy resins (or derivatives thereof) as reinforcement (as such C08L 63/00)

Use of polyesters (or derivatives thereof) as reinforcement (as such C08L 67/00)

Use of {PC, i.e.} polycarbonates (or derivatives thereof) as reinforcement (as such C08L 69/00)

Use of polyethers, e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof, as reinforcement (as such C08L 71/00)

Use of other polymers having oxygen as the only hetero atom in the main chain, as reinforcement (as such C08L 73/00)

Use of {PU, i.e.} polyureas or polyurethanes (or derivatives thereof), as reinforcement (as such C08L 75/00)

Polureas (as such C08L 75/02)

Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain (not provided for in groups B29K261/00 to B29K277/00) as reinforcement (as such C08L 79/00)

Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as reinforcement (as such C08L 81/00)

Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, as reinforcement (as such C08L 83/00)

Use of polymers having other elements (than silicon, sulfur, nitrogen, oxygen, and carbon) in the main chain, as reinforcement (as such C08L 85/00)

Use of waxes as reinforcement (as such C08L 91/06)

Use of bituminous materials, as reinforcement (as such C08L 95/00)
Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as filler {(as such C08L 1/00)}

**NOTE**
Copolymers are indexed with the same indexing code as the majority polymers

Use of natural rubber as filler {(as such C08L 7/00)}

Use of rubber derived from conjugated dienes as filler {(as such C08L 9/00)}

Use of polyalkenes (or derivatives thereof) as filler {(as such C08L 23/00)}
- (Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such C08L 23/18)}

Use of polymers of vinyl-aromatic compounds (or derivatives thereof) as filler {(as such C08L 25/00)}

Use of polyvinylhalogenides (or derivatives thereof) as filler {(as such C08L 27/00)}
- containing fluorine {(as such C08L 27/12)}
- PTFE, i.e. polytetrafluoroethylene {(as such C08L 27/18), e.g. ePTFE, i.e. expanded polytetrafluoroethylene, Gore Tex (R)}

Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals (or derivatives thereof), as filler {(as such C08L 29/00)}

Use of polyvinylesters (or derivatives thereof) as filler {(as such C08L 31/00)}

Use of polymers of unsaturated acids or derivatives thereof as filler {(as such C08L 33/00)} (B29K435/00 takes precedence)
- Polymers of esters {(as such C08L 33/04)}
- Polymers of nitriles {(as such C08L 33/18)}
- PAN, i.e. polyacrylonitrile {(as such C08L 33/20)}

Use of polymers of unsaturated polycarboxylic acids (or derivatives thereof) as filler {(as such C08L 35/00)}

Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins (or derivatives thereof), as filler {(as such C08L 45/00)}

Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K23/00 to {B29K49/00, e.g. having a vinyl group}, as filler {(as such C08L 55/00)}
- ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers {(as such C08L 55/02)}

Use of polyacetals (e.g. POM, i.e. polyoxymethylene; or derivatives thereof), as filler {(as such C08L 59/00)}

Use of condensation polymers of aldehydes or ketones (or derivatives thereof), as filler {(as such C08L 61/00)}
- Phenoplasts {(as such C08L 61/04)}
- Aminoplasts {(as such C08L 61/20)}
B29K 2463/00 Use of {EP, i.e.}epoxy resins {or derivatives thereof}as filler {((as such C08L 63/00))}
B29K 2467/00 Use of polyesters {or derivatives thereof}as filler {((as such C08L 67/00))}
B29K 2469/00 Use of {PC, i.e.}polycarbonates {or derivatives thereof}as filler {((as such C08L 69/00))}
B29K 2471/00 Use of polyethers, {e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof}, as filler {((as such C08L 71/00))}
B29K 2473/00 Use of other polymers having oxygen as the only hetero atom in the main chain, as filler {((as such C08L 73/00))}
B29K 2475/00 Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof}, as filler {((as such C08L 75/00))}
B29K 2475/02 · Polyureas {((as such C08L 75/02))}
B29K 2479/00 Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups B29K461/00 to B29K477/00}, as filler {((as such C08L 79/00))}
B29K 2481/00 Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as filler {((as such C08L 81/00))}
B29K 2483/00 Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, as filler {((as such C08L 83/00))}
B29K 2485/00 Use of polymers having other elements {than silicon, sulfur, nitrogen, oxygen, and carbon} in the main chain, as filler {((as such C08L 85/00))}
B29K 2491/00 Use of waxes as filler {((as such C08L 91/06))}
B29K 2495/00 Use of bituminous materials, as filler {((as such C08L 95/00))}
B29K 2601/00 Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, for preformed parts, e.g. inserts {((as such C08L 1/00)}

NOTE
Copolymers are indexed with the same indexing code as the majority polymers

B29K 2607/00 Use of natural rubber for preformed parts, e.g. inserts {((as such C08L 7/00))}
B29K 2609/00 Use of rubber derived from conjugated dienes for preformed parts, e.g. inserts {((as such C08L 9/00))}
B29K 2623/00 Use of polyalkenes {or derivatives thereof} for preformed parts, e.g. inserts {((as such C08L 23/00))}
B29K 2623/18 · Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) {((as such C08L 23/18)}
B29K 2625/00 Use of polymers of vinyl-aromatic compounds {or derivatives thereof} for preformed parts, e.g. inserts {((as such C08L 25/00)}
B29K 2627/00 Use of polyvinylhalogenides {or derivatives thereof} for preformed parts, e.g. inserts {((as such C08L 27/00)}
B29K 2627/12 · containing fluorine {((as such C08L 27/12)}
B29K 2627/18 · · PTFE, i.e. polytetrafluoroethene {((as such C08L 27/18), e.g. ePTFE, i.e. expanded polytetrafluoroethene, Gore Tex (R))
B29K 2629/00  Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals (or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 29/00)

B29K 2631/00  Use of polyvinylesters (or derivatives thereof) for preformed parts, e.g. inserts (as such C08L 31/00)

B29K 2633/00  Use of polymers of unsaturated acids or derivatives thereof for preformed parts, e.g. inserts (as such C08L 33/00) (B29K635/00 takes precedence)

B29K 2633/04  · Polymers of esters (as such C08L 33/04)
B29K 2633/18  · Polymers of nitriles (as such C08L 33/18)
B29K 2633/20  · · PAN, i.e. polyacrylonitrile (as such C08L 33/20)

B29K 2635/00  Use of polymers of unsaturated polycarboxylic acids (or derivatives thereof) for preformed parts, e.g. inserts (as such C08L 35/00)

B29K 2645/00  Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins (or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 45/00)

B29K 2655/00  Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K623/00 to B29K 2649/00, e.g. having a vinyl group, for preformed parts, e.g. inserts (as such C08L 55/00)

B29K 2655/02  · ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers (as such C08L 55/20)

B29K 2659/00  Use of polycetals (e.g. POM, i.e. polyoxymethylene; or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 59/00)

B29K 2661/00  Use of condensation polymers of aldehydes or ketones (or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 61/00)

B29K 2661/04  · Phenoplasts (as such C08L 61/04)
B29K 2661/20  · Aminoplasts (as such C08L 61/20)

B29K 2663/00  Use of {EP, i.e.} epoxy resins (or derivatives thereof) for preformed parts, e.g. inserts (as such C08L 63/00)

B29K 2667/00  Use of polyesters (or derivatives thereof) for preformed parts, e.g. inserts (as such C08L 67/00)

B29K 2669/00  Use of {PC, i.e.} polycarbonates (or derivatives thereof) for preformed parts, e.g. inserts (as such C08L 69/00)

B29K 2671/00  Use of polyethers, e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 71/00)

B29K 2673/00  Use of other polymers having oxygen as the only hetero atom in the main chain, for preformed parts, e.g. inserts (as such C08L 73/00)

B29K 2675/00  Use of {PU, i.e.} polyureas or polyurethanes (or derivatives thereof), for preformed parts, e.g. inserts (as such C08L 75/00)

B29K 2675/02  · Polyureas (as such C08L 75/02)

B29K 2679/00  Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain (not provided for in groups B29K661/00 to B29K677/00), for preformed parts, e.g. inserts (as such C08L 79/00)
B29K 2681/00 Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, for preformed parts, e.g. inserts (as such C08L 81/00)

B29K 2683/00 Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, for preformed parts, e.g. inserts (as such C08L 83/00)

B29K 2685/00 Use of polymers having other elements (than silicon, sulfur, nitrogen, oxygen, and carbon) in the main chain, for preformed parts, e.g. inserts (as such C08L 85/00)

B29K 2691/00 Use of waxes for preformed parts, e.g. inserts (as such C08L 91/00)

B29K 2695/00 Use of bituminous materials, for preformed parts, e.g. inserts (as such C08L 95/00)

U B29K 2823/00 {Use of polyalkenes or derivatives thereof as mould material (as such C08L 23/00)}

B29K 2823/18 {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such C08L 23/18)}

B29K 2855/00 {Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K 2823/00 to B29K 2849/00, e.g. having a vinyl group, as mould material (as such C08L 55/00)}

B29K 2877/00 {Use of PA, i.e. polyamides, e.g. polyesteramides or derivatives thereof, as mould material (as such C08L 77/00)}

B29K 2879/00 {Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain not provided for in groups B29K 2861/00 to B29K 2877/00, as mould material (as such C08L 79/00)}

U B30B 1/00 Presses, using a press ram, characterised by the features of the drive therefor, pressure being transmitted directly, or through simple thrust or tension members only, to the press ram or platen

B30B 1/18 by screw means (B30B 9/3064 takes precedence)

B30B 1/24 by rack-and-pinion means (B30B 9/3067 takes precedence)

B30B 1/30 by the pull of chains or ropes (B30B 9/3071 takes precedence)

U B30B 11/00 Presses specially adapted for forming shaped articles from material in particulate or plastic state, e.g. briquetting presses, tableting presses (for clay or mixtures containing cement B28B; for plastics materials B29)

B30B 11/004 involving the use of very high pressures, {for the formation of artificial diamonds or boronitrides B01J 3/065}

Project: MP0118 (B31)

U B31 MAKING PAPER ARTICLES; WORKING PAPER (making layered products not composed wholly of paper or cardboard B32B; handling thin material, e.g. sheets, webs, B65H)

NOTES
1. The word “paper” in this class is to be interpreted as covering material worked in a manner analogous to paper, e.g. plastic sheet materials, laminated materials
or metal foils. This class does not include making articles directly from paper pulp, which is covered by B21J.

2. This class is to be understood as restricted to adaptations or associations of handling sheets, webs, or blank peculiar to paper-working, e.g. bag or box making, machinery. Handling sheets, webs, or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, is to be regarded as of a more comprehensive nature and as such classified in B65H.

## MAKING BOXES, CARTONS, ENVELOPES OR BAGS OF PAPER OR CARDBOARD (incising, scoring, in general B26D 3/08; combined making and filling B65B)

### NOTES

1. In this subclass, envelopes or bags are regarded as being essentially flexible containers, the final shape of which is determined by their contents.

2. In this subclass, the following expression is used with the meaning indicated:
   - "boxes or cartons" includes bags formed similarly to cartons, trays with upstanding side-walls, barrels, tubes and cups, other than articles formed by winding.

3. In this subclass, it is desirable to add the indexing codes of B31B 2201/00 - B31B2241/00N

### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

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Box, carton, envelope or bag making machinery characterised by performing specific operations (machinery for performing operations of general application, see the appropriate subclasses)

**NOTE**

Envelope or bag making machinery characterised by performing specific operations is classified in the respective subgroups of group B31B 19/00 (or of groups B31B 23/00 to B31B 29/00, B31B 37/00 to B31B 41/00)

- Feeding or positioning sheets, blanks, or webs
- Feeding sheets or blanks from stacks (B31B 5/76 takes precedence)
- by air pressure or suction (B31B 1/06 takes precedence)
- Cutting, e.g. perforating, punching, slitting, trimming (means for removing cut-out material or waste B26D 7/18)
- Cutting sheets or blanks (e.g. cutting corners, or involving scoring or printing or embossing (surface scoring per se B31B 1/25; printing or embossing per se B31B 1/88)
- Machinery characterised by making boxes or cartons by folding single-piece sheets, blanks, or webs (B31B 5/00 takes precedence)
- and having means for cutting, e.g. perforating, punching, slitting, trimming (not used; see B31B 1/14)
- Machinery characterised by making boxes or cartons by folding single-piece sheets which can be set-up from a collapsed condition, including setting-up and recollapsing to break creases
- and having means for feeding or positioning sheets (not used; see B31B 1/02)
- and having means for cutting, e.g. perforating, punching, slitting, trimming (not used; see B31B 1/14)
Project: MP0118 (B31C)

M B31C MAKING WOUND ARTICLES, e.g. WOUND TUBES, OF PAPER OR CARDBOARD (characteristics relating to the working of plastics B29; shaping of plastics or substances in a plastic state B29C)

NOTE
The term "winding" in this subclass means forming two or more complete convolutions.

M B31C 1/00 Forming paper tubes or pipes of paper or cardboard by feeding at right angles to the winding mandrel centre line

M B31C 3/00 Forming paper tubes or pipes of paper or cardboard by feeding obliquely to the winding mandrel centre line

M B31C 5/00 Forming paper tubes or pipes of paper or cardboard without mandrels

M B31C 7/00 Forming conical articles of paper articles or cardboard by winding (winding blanks B31B)

M B31C 11/00 Paper-Machinery for winding machinery paper or cardboard combined with other machinery

Project: MP0118 (B31D)

M B31D MAKING OTHER ARTICLES OF PAPER ARTICLES OR CARDBOARD NOT PROVIDED FOR IN SUBCLASSES B31B OR B31C (manufacture by dry processes of articles made from particles or fibres consisting of wood or other lignocellulosic or like organic material B27N; making layered products not composed wholly of paper or cardboard B32B; making cardboard or paper D21F, D21H; making articles from cellulosic fibrous suspensions, e.g. wood pulp D21J)

NOTE
This subclass covers the making, otherwise than by winding, of articles other than boxes, cartons, envelopes, bags, and tubes from paper, other than from paper-pulp.

Project: N/A (B31F)

U B31F 1/00 Mechanical deformation of paper or cardboard without removing material including combined deformation and laminating (embossing combined with application of ink, type marking presses, selective embossing machines B41F, B41J, B41K, B41M; machines or apparatus for embossing decorations or marks B44B 5/00; artists hand tools for embossing B44B 11/04; producing decorative effects by processes for stamping ornamental designs on surfaces B44C 1/24; mechanical deformation during paper or board making, kinds of paper or board D21)

B31F 1/12 · Crêping paper or cardboard (i.e. providing paper or cardboard with small irregular crinkles; Making paper or cardboard elastic in all directions)

U B31F 1/20 · Corrugating; Corrugating combined with laminating to other paper or cardboard layers (corrugating sheet metal B21D 13/00; corrugating plastics material B29C 53/22; corrugating veneer B27D)

U B31F 1/24 · Making webs in which the channel of each corrugation is transverse to the web feed

B31F 1/26 · · by interengaging toothed cylinders (cylinder constructions (B31F 1/242 takes precedence))
by making use of rods, e.g. co-operating with a toothed cylinder (combined with uniting the corrugated web to flat webs (B31F 1/30 takes precedence))

Moistening and heating webs to facilitate mechanical deformation and drying deformed webs (during corrugating B31F 1/28)

Attaching together paper or cardboard sheets, strips, or webs; (or other preformed paper articles joining by rim-rolling B31F 1/0041, B31F 1/009; closing tube ends by inserting an element B31F 1/008, making boxes B31B) Reinforcing edges of paper or cardboard (means for applying adhesive or glue B05C; stapling in box or like making B31B; attaching the replacement web to the expiring web during web-roll changing B65H 19/18; apparatus for splicing webs during handling B65H 21/00)

Processes for working paper or cardboard not otherwise provided for

Breaking the coating on paper or cardboard

Layered products having a general shape other than plane

NOTE
For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.

characterised by feature of form at particular places, e.g. in edge regions ((not used))

characterised by fillings or added members in hollow portions ((not used))

Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form ((fibrous or filamentary layers B32B 5/02; particulate layers B32B 5/16; foamed layers B32B 5/18); Layered products having particular features of form (receptacles or tubular products B32B 1/00))

characterised by features of form at particular places, e.g. in edge regions ((non-uniform thickness B32B 3/263))

characterised by added members at particular parts ((layer formed of separate pieces of material which are juxtaposed side-by-side B32B 3/14, B32B 3/18))

characterised by a discontinuous layer, i.e. formed of separate pieces of material

NOTE
In this group, a series of spaced separate elements forming in effect a broken surface should be regarded as a layer.

characterised by an internal layer formed of separate pieces of material (which are juxtaposed side-by-side (B32B 5/02 takes precedence))

characterised by a particular shape of the outline of the cross-section of a continuous layer; characterised by a layer with cavities or internal voids ((B32B 27/205 takes precedence; foam layer B32B 15/08); (characterised by an apertured layer)
Layered products characterised by the non-homogeneity or physical structure, i.e. comprising a fibrous, filamentary, particulate or foam layer; layered products characterised by having a layer differing constitutionally or physically in different parts

NOTE
In this group, fibres, filaments, granules, or powder forming or included in a layer may be impregnated, bonded together, or embedded in a substance such as synthetic resin. If the substance of the fibres, or the like, or the impregnating, bonding, or embedding substance, is important it is classified in the relevant group for the substance.

Layered products characterised by the presence of two or more layers which are next to each other and are fibrous, filamentary, formed of particles or foamed (B32B 19/06, B32B 19/048 to B32B 19/047, B32B 29/005 to B32B 29/04 take precedence)

Layered products characterised by the relation between layers, i.e. products comprising layers having different physical properties and products characterised by the interconnection of layers

Layered products comprising a layer of metal

Layered products essentially comprising sheet glass, or glass, slag, or like fibres

Layered products comprising a layer of cellulosic plastic substances, i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose
B32B 23/04 · comprising such (cellulosic plastic substance as the main or only constituent of a layer, which is next to another layer of the same or of a different material (B32B 17/08 takes precedence))

B32B 23/08 · of synthetic resin ((all layers being polymeric B32B 2250/24))

B32B 25/00 Layered products comprising {a layer of} natural or synthetic rubber ((B32B 5/02, B32B 5/16, B32B 5/18 take precedence; thermoplastic elastomer B32B 2274/00))

B32B 25/04 · comprising rubber as the main or only constituent of a layer, {which is next to another layer of the same or of a different material (B32B 17/06 takes precedence); next to a layer of a particular substance B32B 9/04; next to a bituminous or tarry layer B32B 11/04; next to a water setting substance layer B32B 13/04; next to a metal layer B32B 15/06; next to a layer formed of natural mineral fibres or particles B32B 19/04; next to a wood layer B32B 21/04; next to a cellulosic plastic layer B32B 23/04})

B32B 25/08 · of synthetic resin ((all layers being polymeric B32B 2250/24))

B32B 27/00 Layered products comprising {a layer of} synthetic resin ((B32B 5/02, B32B 5/16, B32B 5/18 take precedence; thermoplastic elastomer B32B 2274/00))

NOTE This group covers all synthetic resins except those covered by B32B 25/00 or B32B 23/00

B32B 27/02 · in the form of fibres or filaments {(not used)}

B32B 27/04 · as impregnant, bonding, or embedding substance {(not used)}

U B32B 27/06 · as the main or only constituent of a layer, {which is next to another layer of the same or of a different material (B32B 17/06 takes precedence; next to a layer of a particular substance B32B 9/04; next to a bituminous or tarry layer B32B 11/04; next to a water setting substance layer B32B 13/12; next to a metal layer B32B 15/08; next to a layer formed of natural mineral fibres or particles B32B 19/04; next to a wood layer B32B 21/04; next to a cellulosic plastic layer B32B 23/08; next to a natural or synthetic rubber layer B32B 25/08})

B32B 27/08 · of synthetic resin {(all layers being polymeric, made of polymers belonging to those covered by B32B 27/32, by B32B 27/36, or by B32B 27/30 and B32B 27/32, B32B 2250/24 to B32B 2250/246})

B32B 27/16 · specially treated, e.g. irradiated {(B32B 2255/10 takes precedence)}

B32B 27/32 · comprising polyolefins {(B32B 27/30 takes precedence)}

U B32B 29/00 Layered products comprising {a layer of} paper or cardboard

B32B 29/06 · specially treated, e.g. surfaced, parchmentised {(B32B 2255/12, B32B 2260/02 takes precedence)}

B32B 37/00 Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding {(making non-planar products B32B 1/00; making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers B32B 17/10807; coating of single webs or the like B05)}
Project: N/A (B41C)

B41C 1/10 · for lithographic printing: Master sheets for transferring a lithographic image to the forme (chemical or electrical pretreatment B41N 3/03) (neutralising or similar differentiation treatments of lithographic printing formes B41N 3/08)

B41C 1/18 · Curved printing formes or printing cylinders (B41C 1/10, B41C 1/14 take precedence)

Project: N/A (B41F)

U B41F 1/00 Platen presses, i.e. presses in which printing is effected by at least one essentially-flat pressure-applying member co-operating with a flat type-bed

B41F 1/16 · for offset printing (pad printing B41F 17/001)

U B41F 1/26 · Details

U B41F 1/28 · · Sheet-conveying, -aligning or -clamping devices (in general B65H)

B41F 1/36 · · · Clamps for conveying sheets and for holding same on the platens (clamps in manifolding devices B41L 3/02)

B41F 1/40 · · Inking units (for pad printing B41F 17/001)

B41F 5/00 Rotary letterpress machines (office printing machines B41L 15/00)

B41F 7/00 Rotary lithographic machines (such office printing machines B41L 7/00)

U B41F 13/00 Common details of rotary presses or machines

U B41F 13/008 · Mechanical features of drives, e.g. gears, clutches

B41F 13/012 · · Taking-up backlash (devices for taking-up backlash in general F16H 55/00, e.g. F16H 55/18)

U B41F 13/08 · Cylinders

U B41F 13/10 · · Forme cylinders

B41F 13/11 · · · Gravure cylinders (attaching cylindrical formes B41F 27/105)

B41F 13/193 · · · Transfer cylinders; Offset cylinders (attaching blankets B41F 30/04)

U B41F 23/00 Devices for treating the surfaces of sheets, webs, or other articles in connection with printing (cleaning in general B08B; as a final step in the manufacture of such articles, see appropriate subclasses, e.g. B29C 71/00, D21H 23/00 or D21H 25/00; in manifolding apparatus or the like B41L 23/00; surface treatment in general B44D, of metal C23G)

B41F 23/04 · by heat drying, by cooling, by applying powders (B41F 23/005 takes precedence)

B41F 23/08 · Print finishing devices, e.g. for glossing prints (B41F 23/005 takes precedence)

U B41F 31/00 Inking arrangements or devices (inking units for platen presses B41F 1/40; for cylinder presses B41F 3/81; for rotary intaglio printing presses B41F 9/061); applying liquids or other fluent materials to surfaces in general B05; inking arrangements or devices for typewriters or selective printing mechanisms B41J

U B41F 31/02 · Ducts, containers, supply or metering devices (level control in general G05D 9/00)

B41F 31/13 · · Means for driving fountain rollers (B41F 13/12 takes precedence)

B41F 35/00 Cleaning arrangements or devices (in manifolding apparatus or the like B41L 41/00)
Project: N/A (B41M)

B41M PRINTING, DUPLICATING, MARKING, OR COPYING PROCESSES; COLOUR PRINTING, (correction of typographical errors B41J; processes for applying transfer pictures or the like B44C 1/16; fluid media for correction of typographical errors by coating C09D 10/00; printing textiles D06P)

U B41M 1/00 Inking and printing with a printer’s forme

U B41M 1/26 · Printing on other surfaces than ordinary paper (B41M 1/40 takes precedence)

U B41M 1/30 · on organic plastics, horn or similar materials ((recording sheets having a coating to improve ink, dye or pigment receptivity B41M 5/50; marking or recording on plastic by irradiation with electromagnetic beams, e.g. laser, B41M 5/267))

U B41M 1/34 · on glass or ceramic surfaces ((ink-jet printing on glass or ceramic surfaces B41M 5/00))

U B41M 1/36 · on pre-treated paper, e.g. parchment, oiled paper, paper for registration purposes ((B41M 5/50 takes precedence))

U B41M 1/40 · Printing on bodies of particular shapes, e.g. golf balls, candles, wine corks ((sublimation or volatilisation of pre-printed design B41M 5/035))

U B41M 1/42 · Printing without contact between forme and surface to be printed, e.g. by using electrostatic fields ((using a stencil or screen B41M 1/125))

U B41M 3/00 Printing processes to produce particular kinds of printed work, e.g. patterns (special designs or pictures per se B44F; printing apparatus or machines of special type or for particular purposes B41F 17/00; manufacturing organic semiconductor devices using printing techniques H01L 51/0004; manufacturing printed circuits using printing techniques H05K 3/12)

U B41M 3/12 · Transfer pictures or the like, e.g. decalcomanias ((processes for producing decorative surface effects B44C 1/00; B41M 5/0256 takes precedence))

U B41M 5/00 Duplicating or marking methods; Sheet materials for use therein (by using light-sensitive materials G03; electrography, magnetography G03G; repeatedly usable boards or tablets for writing or drawing B43L 1/00)

U B41M 5/24 · Ablative recording, e.g. by burning marks; Spark recording ((marking by high energetic means, e.g. by laser otherwise than burning or ablative removal B41M 5/26; materials or methods for recording or reproduction by optical means G11B 7/00))

U B41M 5/26 · Thermography (B41M 5/20, B41M 5/24 take precedence); (Marking by high energetic means, e.g. laser otherwise than by burning, and characterised by the material used (B23K takes precedence; thermographic or photothermographic systems using noble metal compounds G03C 1/494))

U B41M 5/28 · using thermochromic compounds or layers containing liquid crystals, microcapsules, bleachable dyes or heat-decomposable compounds, e.g. gas-liberating ((B41M 5/38271 takes precedence))

U B41M 5/30 · using chemical colour formers (B41M 5/34 takes precedence)

U B41M 5/337 · Additives; Binders ((B41M 5/46 takes precedence))

U B41M 5/382 · Contact thermal transfer or sublimation processes (sublistatic printing using a pre-formed image B41M 5/035; ink-, dye- or pigment-receptive coatings B41M 5/52)

U B41M 5/385 · characterised by the transferable dyes or pigments ((infra-red absorbing dyes B41M 5/465))
characterised by the base (backcoat), intermediate, or covering layers, {e.g. for thermal transfer dye-donor or dye-receiver sheets}; Heat, radiation filtering or absorbing means or layers; combined with other image registration layers or compositions; Special originals for reproduction by thermography { (macromolecular ink- or dye-receptive coatings B41M 5/52) }

Intermediate, (backcoat), or covering layers { (B41M 5/405 takes precedence; multilayer thermal transfer systems in general B41M 5/38214) }

NOTE
When the invention information lies in the combination of features covered by more than one of the subgroups of B41M 5/42, classification is made in B41M 5/42, using the corresponding indexing codes of its subgroups to identify the individual features

Recording sheets characterised by the coating used to improve ink, dye or pigment receptivity, e.g. for ink-jet or thermal dye transfer recording { (printing on organic plastics using a printer’s form B41M 1/30; printing on pre-treated paper with a printer’s form B41M 1/36) }

Project: N/A (B41N)

Printing plates or foils; Materials therefor

B41N 1/00

B41N 1/12

non-metallic other than stone, {e.g. printing plates or foils comprising inorganic materials in an organic matrix (B41N 1/003, B41N 1/006 take precedence) }

Preparing for use and conserving printing surfaces

B41N 3/08

Damping; Neutralising or similar differentiation treatments for lithographic printing forms; { Gumming or finishing solutions, fountain solutions, correction or depletion fluids, or on-press development (treatment of materials containing silver salts G03F 7/063; developers per se for processing photosensitive materials G03F 7/32) }

Project: N/A (B43K)

Pens with ink reservoirs in holders, e.g. fountain-pens (nibs or writing-points with ink reservoirs B43K 1/01; ball-point pens B43K 7/00; pens with writing-points other than nubs or balls B43K 8/00; multiple-point writing implements B43K 27/00)

Ink reservoirs

B43K 5/06

with movable pistons {for withdrawing ink from an ink-receptacle (B43K 5/1818 takes precedence) }

Project: MP0118 (B60B)

VEHICLE WHEELS

(making wheels or wheel parts by rolling B21H 1/00; by forging, hammering or pressing B21K 1/28); CASTORS; AXLES FOR WHEELS OR CASTORS; INCREASING WHEEL ADHESION

NOTE
Attention is drawn to the Explanatory Note following the class title (B60)

Project: N/A (B60C)

Tyres characterised by the transverse section (characterised by rail-engaging elements B60B 17/00)

Asymmetric { (asymmetric bead seats B60C 15/0236; asymmetric bead reinforcement B60C 2015/0696) }
B60C 23/00  Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles (measuring in general G01, e.g. G01L 17/00; remote signalling in general G08); Arrangement of tyre inflating devices on vehicles, e.g. of pumps, of tanks ((supplying air for tyre inflation B60S 5/04)); Tyre cooling arrangements

B60C 23/02  · Signalling devices actuated by tyre pressure {(hand-held tyre pressure gauges G01L 17/00)}

B60C 23/10  · Arrangements of tyre-inflating pumps mounted on vehicles {(B60C 23/001 takes precedence)}

B60C 23/16  · Arrangements of air tanks mounted on vehicles {(B60C 23/001 takes precedence)}

B60C 27/00  Non-skid devices temporarily attachable to resilient tyres or resiliently-tyred wheels {((vehicle mounted non-skid chains B60B 39/00))}

U B60C 29/00  Arrangements of tyre-inflating valves to tyres or rims; Accessories for tyre-inflating valves, not otherwise provided for (tools for mounting or demounting valves B60C 25/18; valves per se, valve dust caps F16K)

B60C 29/06  · Accessories for tyre-inflating valves, e.g. housings, guards, covers for valve caps, locks, not otherwise provided for {((B60C 23/0496 takes precedence; tools for screwing and unscrewing valve caps B25B 27/0057; pump connectors F04B 33/005)}

Project: N/A (B60D)

U B60D 1/00  Traction couplings; Hitches; Draw-gear; Towing devices (devices specially adapted for connection between tractors and agricultural machines or implements A01B 59/00; fifth-wheel couplings B62D)

U B60D 1/24  · characterised by arrangements for particular functions

B60D 1/36  · · for facilitating connection, e.g. hitch catchers {, visual guide means, signalling aids (B60D 1/465 takes precedence; vehicle signalling in general B60Q; optical arrangements specially adapted for viewing trailer-hitches B60R 1/003)}

Project: N/A (B60G)

U B60G 3/00  Resilient suspension for a single wheel (pivoted suspension arms per se, attachment thereof to sprung part of the vehicle, buffer means for limiting movement of arms B60G 7/00; (rigid axle suspensions B60G 9/00; characterised by arrangement, location or type of springs B60G 11/00)

U B60G 3/18  · with two or more pivoted arms, e.g. parallelogram

U B60G 3/20  · · all arms being rigid

B60G 3/26  · · · Means for maintaining substantially-constant wheel camber during suspension movement; {Means for controlling the variation of the wheel position during suspension movement (B60G 3/202, B60G 3/22, B60G 7/003, B60G 7/006 take precedence; means for adjusting camber, castor, or toe-in B62D 17/00)}

U B60G 9/00  Resilient suspensions of a rigid axle or axle housing for two or more wheels {{the axle being a part of a set of tandem axles B60G 5/00-B60G 5/065; with leaf springs B60G 11/02-B60G 11/08}}

B60G 9/02  · the axle or housing being pivotally mounted on the vehicle, {e.g. the pivotal axis being parallel to the longitudinal axis of the vehicle (B60G 9/003 takes precedence)}
Project: N/A (B60H)

U B60H 1/00 Heating, cooling or ventilating devices (heating, cooling or ventilating devices providing other air treatment, the other treatment being relevant, B60H 3/00; ventilating solely by opening windows, doors, roof parts, or the like B60J; heating or ventilating devices for vehicle seats B60N 2/56; vehicle window or windscreen cleaners using air, e.g. defrosters, B60S 1/54)

NOTE In this group and its subgroups, as well as in patent documents, the following abbreviation is used:

· HVAC Heating, Ventilating and Air Conditioning

U B60H 1/02 · the heat being derived from the propulsion plant ((B60H 1/00492 takes precedence))

B60H 1/14 · otherwise than from cooling liquid of the plant (e.g. heat from the grease oil, the brakes, the transmission unit (B60H 1/03 takes precedence))

U B60H 3/00 Other air-treating devices

B60H 3/02 · Moistening; Devices influencing humidity levels, i.e. humidity control (B60H 1/3202, B60H 1/3207 take precedence)

Project: N/A (B60J)

U B60J 1/00 Windows; Windscreens; Accessories therefor (B60J 10/00 takes precedence; air curtains instead of windows B60J 9/04; sealing strips for windshields B60J 10/02; sealing sash guides for sliding window panes B60J 10/04; glass partitions inside vehicles to protect occupants against personal attack B60R 21/12)

B60J 1/02 · arranged at the vehicle front (e.g. structure of the glazing, mounting of the glazing (on windscreen mounted antenna wire H01Q 1/1271))

U B60J 7/00 Non-fixed roofs; Roofs with movable panels (e.g. rotary sunroofs) (B60J 10/00 takes precedence; window aspects B60J 1/00; fixed roofs B62D 25/06; mechanisms for operating wings E05F 11/00, E05F 15/00)

U B60J 7/02 · of sliding type (e.g. comprising guide shoes)

B60J 7/04 · · with rigid plate-like element or elements (e.g. open roofs with harmonica-type folding rigid panels (B60J 7/061 takes precedence))

U B60J 10/00 Sealing arrangements (sealing arrangements for other vehicle parts B60R 13/06; sealings in general F16J 15/00)

U B60J 10/02 · for windows or windscreens (B60J 10/0002 to B60J 10/0091 take precedence)

U B60J 10/04 · · for sliding window panes, e.g. sash guides

B60J 10/06 · · · for flush-glass windows (i.e. flush with body or window frame (B60J 10/041 takes precedence))

B60J 10/08 · for doors, (lids or bonnets (B60J 10/0002 to B60J 10/0091 take precedence))

B60J 10/10 · for non-fixed roofs, (e.g. foldable roofs, removable hard-tops and tarpaulins (B60J 10/0002 to B60J 10/0091 take precedence))
ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS IN VEHICLES; AUXILIARY DRIVES FOR VEHICLES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST, OR FUEL SUPPLY, OF PROPULSION UNITS, IN VEHICLES

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "conjoint control of drive units" includes such control for vehicles or of general applicability;
   • "auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;
   • "transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;
   • "drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;
   • "sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;
   • "hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion

2. Attention is drawn to the Note following the title of class B60

Seats specially adapted for vehicles (for facilitating access of invalids to, or exit of invalids from, vehicles A61G 3/02 , railway seats B61D 33/00 , cycle seats B62J 1/00 , aircraft seats B64D 11/06 , B64D 25/04 , B64D 25/10)

Details or parts not otherwise provided for (seats in general A47C 7/00 ; storage compartments mounted on or under a seat B60R 7/043)

Arrangements or adaptations of other passenger fittings, not otherwise provided for (of radio sets, television sets, telephones, stowing or holding appliances , safety belts or the like B60R)
Arrangements or adaptations of optical signalling or lighting devices (for lighting vehicle interior B60Q 3/00 ; { circuit arrangements for electric light sources in general H05B 37/00})

- Devices preventing the lights from becoming dirty or damaged (protecting lighting devices from damage in general F21V 15/00), e.g. protection grids (fastening of grids or protective cages in general F21V 17/00), cleaning by air flow (windshield wipers for cleaning optical devices of vehicles B60S 1/04)

- The devices being primarily intended to illuminate the way ahead or to illuminate other areas of way or environments

- The devices being headlights

- Adjustable, e.g. remotely controlled from inside vehicle (B60Q 1/05 takes precedence; { changing the characteristics or distribution of the light by adjustment of parts, e.g. reflectors, light sources, lenses, screens F21V 14/00})

- Automatically

- Due to vehicle inclination, e.g. due to load distribution

- By electric means ( details of the electric drive components, e.g. motors, shafts, ball joints B60Q 1/076)

- Having dimming means ( lighting power supply circuits in general H05B)

- Being additional front lights ( bracket mounted headlights B60Q 1/0483)

- Fog lights ( single shaped beam lighting devices specially adapted for vehicles for penetrating fog or preventing glare F21S 8/12)

- The devices being primarily intended to indicate the vehicle, or parts thereof, or to give signals, to other traffic ( such devices mounted on the vehicle rear part F21S 48/20 ; means for the lighting or illuminating of aerials, e.g. for purpose of warning H01Q 1/06)

- For giving flashing caution signals during drive, other than signalling change of direction, e.g. flashing the headlights, {hazard lights ( flashing lights in general F21S 10/06)}

- For parking purposes ( warning arrangements in garages E04H 6/42)

- For indicating other intentions or conditions, e.g. request for waiting or overtaking

- For indicating emergencies ( braking indicating devices B60Q 1/44 , portable emergency signal devices B60Q 7/00)

- For indicating speed ( outside of the vehicle ( automatic vehicle speed controlling fittings including unintended speed signalling devices to the vehicle driver B60K 31/18))

- For illuminating registrations or the like, { e.g. for licence plates ( license plates B60R 13/10)}

Arrangements or adaptations of lighting devices for vehicle interior

- For lighting passenger or driving compartment

- For dashboard ( lighting of individual instruments G01D, association of lighting devices with LCDs G02F 1/1335)

Arrangements or adaptations of acoustic signal devices ( sound producing devices in general G10K)

Arrangement or adaptation of portable emergency signal devices on { board} vehicles { to be placed on roadways or vehicles, e.g. warning triangles}, ( arrangements for enforcing caution on roads, e.g. marker posts, E01F 9/00 ; signs G09F , e.g. reflecting warning triangles G09F 13/16)
### Project: N/A (B60R)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U</strong> B60R 1/00</td>
<td>Optical viewing arrangements (house mirrors and spies <strong>A47G 1/00</strong>; antiglare equipment, e.g. polarising, for windscreen or windows <strong>B60J 3/00</strong>; visual aids for tractors <strong>B62D 49/0614</strong>; devices per se <strong>G02B</strong>)</td>
</tr>
<tr>
<td><strong>U</strong> B60R 1/02</td>
<td>Rear-view mirror arrangements (periscope arrangements <strong>B60R 1/10</strong>; mounted inside vehicle (<strong>B60R 1/025, B60R 1/08</strong> take precedence))</td>
</tr>
<tr>
<td><strong>B60R 1/04</strong></td>
<td>mounted on vehicle exterior (<strong>B60R 1/025, B60R 1/08</strong> take precedence))</td>
</tr>
<tr>
<td><strong>B60R 1/06</strong></td>
<td>with remote control for adjusting position (<strong>B60R 1/0607</strong> takes precedence))</td>
</tr>
<tr>
<td><strong>B60R 1/08</strong></td>
<td>involving special optical features, e.g. avoiding blind spots, e.g. convex mirrors; Side-by-side associations of rear-view and other mirrors (<strong>B60R 1/025, B60R 1/10</strong> take precedence))</td>
</tr>
<tr>
<td><strong>U</strong> B60R 1/10</td>
<td>Front-view mirror arrangements; (specially adapted for covering the peripheral part of the vehicle <strong>B60R 1/002</strong>); periscope arrangements, i.e. optical devices using combinations of mirrors, lenses, prisms or the like (specially adapted for covering the peripheral part of the vehicle <strong>B60R 1/002</strong>; for viewing traffic-lights <strong>B60R 1/005</strong>); Other mirror arrangements giving a view from above or under the vehicle</td>
</tr>
</tbody>
</table>
| **U** B60R 3/00 | Arrangements of steps or ladders facilitating access to or on the vehicle, e.g. running-boards (construction of steps for railway vehicles **B61D 23/00**; ladders **E06C**)
| **B60R 3/02** | retractable steps (or ladders, e.g. movable under shock (**B60R 3/005** takes precedence)) |
| **U** B60R 5/00 | Compartments within vehicle body primarily intended or sufficiently spacious for trunks, suit-cases, or the like (primarily intended for stowing loads in load-transporting vehicles **B60P**; arrangements for stowing spare wheels **B62D 43/00**)
| **B60R 5/02** | arranged at front of vehicle (**B60R 5/003** takes precedence)) |
| **B60R 5/04** | arranged at rear of vehicle (**B60R 5/003, B60R 5/006** take precedence; external trunks arranged at rear of vehicle **B60R 9/065**) |
| **U** B60R 7/00 | Stowing or holding appliances inside vehicle primarily intended for personal property smaller than suit-cases, e.g. travelling articles, or maps (for radio sets, television sets, telephones or the like, mounting of cameras operative during drive, tools, or spare parts **B60R 11/00**; for receptacles for refuse, food, beverages, cigarettes **B60N**)
| **B60R 7/02** | in separate luggage compartment (**B60R 7/005** takes precedence)) |
| **B60R 7/04** | in driver or passenger space, e.g. using racks (**B60R 7/005, B60R 7/08** take precedence)) |
| **B60R 7/08** | Disposition of racks, clips, holders, containers or the like (for supporting specific articles (**B60R 7/005** takes precedence)) |
| **U** B60R 9/00 | Supplementary fittings on vehicle exterior for carrying loads, e.g. luggage, sports gear or the like |
| **U** B60R 9/04 | Carriers associated with vehicle roof (**B60R 9/08** takes precedence)
| **B60R 9/045** | Carriers being adjustable or transformable, e.g. expandable, collapsible (transformable into tents **B60P 3/36**; into beds **B60P 3/38**)
| **B60R 9/06** | at vehicle front or rear (rear luggage compartments within vehicle extensible externally of the vehicle body **B60R 5/041**)) |
| **U** B60R 13/00 | Elements for body-finishing, identifying, or decorating; Arrangements or adaptations for advertising purposes |
B60R 13/04

- (External) Ornamental or guard strips; Ornamental inscriptive devices (thereon (fastening strips or bars to sheets or plates by means of clips F16B 5/12))

B60R 13/08

- Insulating elements, e.g. for sound insulation (sound insulating linings for trains B61D 17/185; drivers’ cabs for load-carrying vehicles insulated against vibrations or noise B62D 33/0604; thermal or acoustic insulation of engines F02B 77/11; damping of sounds using compensation by electro-acoustic methods G10K 11/178)

U B60R 15/00

Arrangements or adaptations of sanitation devices

B60R 15/02

- Washing facilities ((in railway vehicles B61D 35/002))

B60R 15/04

- Toilet facilities ((in railway vehicles B61D 35/005))

B60R 16/00

Electric or fluid circuits specially adapted for vehicles and not otherwise provided for; Arrangement of elements of electric or fluid circuits specially adapted for vehicles and not otherwise provided for (devices for protecting vehicle occupants in case of accidents B60R 21/00; safety belts B60R 22/00; central door locking E05B 49/00, E05B65/38)

U B60R 16/02

- electric (constitutive elements)

U B60R 16/023

- for transmission of signals between vehicle parts or subsystems

B60R 16/027

- between relatively movable parts of the vehicle, e.g. between steering wheel and column (devices for measuring, signalling or controlling tyre pressure or temperature specially adapted for mounting on vehicles B60C 23/00))

B60R 16/03

- for supply of electrical power to vehicle subsystems {or for (circuit arrangements for charging batteries H02J 7/00)}

U B60R 19/00

Wheel guards; Radiator guards, e.g. grilles; Obstruction removers; Fittings damping bouncing force in collisions (reinforcement elements for side doors B60J 5/0412; mudguards B62D)

U B60R 19/02

- Bumpers, i.e. impact receiving or absorbing members for protecting vehicles or fending off blows from other vehicles or objects (B60R 19/56 takes precedence; initiating brake action by contact of bumper with an external object B60T 7/22; for rail vehicles B61F 19/04; safety equipment for cycles B62J 27/00; integral with waterborne vessels or specially adapted therefor B63B 59/02)

U B60R 19/24

- Arrangements for mounting bumpers on vehicles

U B60R 19/26

- comprising yieldable mounting means (B60R 19/38 takes precedence; springs, shock absorbers, or means for damping vibrations per se F16F)

B60R 19/30

- - - Elastomeric material (B60R 19/34 takes precedence)

B60R 19/36

- - - Combinations of yieldable mounting means of different types (fluid shock absorbers with coaxial coil springs B60R 19/32)

B60R 19/38

- - - adjustably or movably mounted, e.g. horizontally displaceable for securing a space between parked vehicles (adjustably mounted for compensating manufacturing tolerances B60R 19/24, B60R 19/26)

B60R 19/40

- - - in the direction of an obstacle before a collision, or extending during driving of the vehicle, i.e. to increase the energy absorption capacity of the bumper (inflatable bumpers B60R 19/20)

B60R 19/52

- Radiator or grille guards (Radiator grilles (cooling aspects B60K 11/08))
Arrangements or fittings on vehicles for protecting or preventing injuries to occupants or pedestrians in case of accidents or other traffic risks (safety belts or body harnesses in vehicles B60R 22/00; devices, apparatus or methods for life-saving in general A62B; safety devices for propulsion unit control specially adapted for, or arranged in, vehicles B60K 28/00; seats constructed to protect the occupant from the effect of abnormal g-forces, e.g. crash or safety seats, B60N 2/42; energy-absorbing arrangements for hand wheels for steering vehicles B62D 1/11; energy-absorbing arrangements for vehicle steering columns B62D 1/19; harnessing in aircraft B64D 25/00)

- Occupant safety arrangements or fittings, e.g. crash pads (seat belts with crash pads B60R 22/14; removable children's seats having a front guard or barrier B60N 2/2839)
- Padded (or energy-absorbing) fittings, e.g. seat belt anchors (sun visors B60J 3/00; head rests B60N 2/48)
- Control elements or operating handles movable from an operative to an out-of-the-way position, e.g. pedals, switch knobs, window cranks (specially adapted for brake pedals, e.g. by venting of master cylinder or destruction of force transmitting rod, B60T 7/065)
- Overhead guards, e.g. against loads falling down (specially adapted for fork-lift trucks B66F 9/07545)

Inflatable occupant restraints or confinements designed to inflate upon impact or impending impact, e.g. air bags (protective garments with automatically inflatable shock-absorbing means A41D 13/018; connection of valves to inflatable elastic bodies B60C 29/00)

- Arrangements for storing inflatable members in their non-use or deflated condition; Arrangement or mounting of air bag modules or components
- Characterised by the covers for the inflatable member (B60R 21/2176 takes precedence)
- Characterised by the inflation fluid source or means to control inflation fluid flow (arrangement or mounting thereof to the vehicle B60R 21/20; blasting cartridges for producing gas under pressure in general F42B 3/04; Initiators or igniters therefor F42B 3/10)

WARNING
Groups B60R 21/261 - B60R 21/264 are not complete, pending a reorganisation; see provisionally also this group

- Using instantaneous release of stored pressurized gas (B60R 21/26005 takes precedence)
- With means to vent the inflation fluid source, e.g. in case of overpressure (B60R 21/30 takes precedence; venting means on inflatable member walls B60R 21/239)
- Protecting non-occupants of a vehicle, e.g. pedestrians (B60R 19/02 takes precedence)

Safety belts or body harnesses in vehicles (safety belts or body harnesses in general A62B 35/00)

- Semi-passive restraint systems, e.g. systems applied or removed automatically but not both; Manual restraint systems (knee, leg or head belts B60R 22/001; devices for releasing in an emergency, remote or automatic unbuckling devices B60R 22/32)
- Construction of belts or harnesses (B60R 21/18 takes precedence; woven fabrics for safety belts D03D 1/0005)
B60R 22/14 · incorporating enlarged restraint areas, e.g. vests, nets, crash pads, optionally for children (crash pads for occupants’ safety on vehicles in general B60R 21/02)

B60R 22/18 · Anchoring devices

B60R 22/185 · with stopping means for acting directly upon the belt in an emergency, e.g. by clamping or friction (B60R 22/195 takes precedence; combined with the retractor B60R 22/42)

B60R 22/19 · with means for reducing belt tension during use under normal conditions (included in the retractor B60R 22/44)

B60R 22/28 · incorporating energy-absorbing devices (belts anchors provided with energy-absorbing means for protecting the occupants in case of physical contact therewith B60R 21/055; belt retractors comprising energy-absorbing means B60R 22/341, B60R 22/4676)

B60R 22/30 · Coupling devices other than buckles, including length-adjusting fittings (or anti-slip devices (adaptations of manual three-point seat belt systems for use by small passengers using other means than belt anti-slip devices B60R 22/024; buckles A44B 11/00; releasable fastenings in general F16B))

B60R 22/32 · Devices for releasing in an emergency, e.g. after an accident; (Remote or automatic unbuckling devices (unlocking devices for retractors B60R 22/3416))

B60R 22/34 · Belt retractors, e.g. reels (anchoring devices (e.g. guide loops), with means to tension the belt in an emergency B60R 22/195)

B60R 22/343 · with electrically actuated locking means (B60R 22/3405 takes precedence)

B60R 22/36 · self-locking in an emergency (B60R 22/3405, B60R 22/343 take precedence)

B60R 22/42 · having means for acting directly upon the belt, e.g. by clamping or friction (not combined with the retractor B60R 22/185)

B60R 22/44 · with means for reducing belt tension during use under normal conditions (not included in the retractor B60R 22/19; B60R 22/3405 takes precedence)

Project: N/A (B60T)

U B60T 7/00 Brake-action initiating means

B60T 7/12 · for automatic initiation; for initiation not subject to will of driver or passenger (limiting speed of vehicles other than rail vehicles B60K 31/00)

U B60T 8/00 Arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions, e.g. limiting or varying distribution of braking force (by changing number of effective brake cylinders in power brake systems B60T 17/10)

B60T 8/17 · Using electrical or electronic regulation means to control braking (detecting or indicating faulty operation B60T 8/885)

B60T 8/172 · Determining control parameters used in the regulation, e.g. by calculations involving measured or detected parameters (B60T 8/17551 takes precedence)

B60T 8/1725 · (Using tyre sensors, e.g. Sidewall Torsion sensors (SWT) (for tyre pressure and temperature detection B60C 23/00)

B60T 8/24 · responsive to vehicle inclination or change of direction, e.g. negotiating bends (using electrical circuitry or regulation means B60T 8/17)

B60T 8/26 · characterised by producing differential braking between front and rear wheels (using electrical circuitry or regulation means B60T 8/17)

B60T 8/28 · responsive to deceleration (B60T 8/261, B60T 8/262, B60T 8/266 take precedence)
B60T 8/30 · · responsive to load (\textit{(B60T 8/261, B60T 8/262, B60T 8/266 take precedence)})

**U B60T 11/00** Transmitting braking action from initiating means to ultimate brake actuator without power assistance or drive or where such assistance or drive is irrelevant (the power assistance or drive being essential \textit{B60T 13/00})

U B60T 11/10 · transmitting by fluid means, e.g. hydraulic
U B60T 11/28 · · Valves specially adapted therefor (recuperation valves \textit{B60T 11/232})
B60T 11/34 · · · Pressure reducing or limiting valves (\textit{for arrangements for adjusting wheel-braking force responsive to vehicle weight or load \textit{B60T 8/1831}})

**U B60T 13/00** Transmitting braking action from initiating means to ultimate brake actuator with power assistance or drive; Brake systems incorporating such transmitting means, e.g. air-pressure brake systems (arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions \textit{B60T 8/00} ; valves incorporated in such systems \textit{B60T 15/00})

B60T 13/02 · with mechanical assistance or drive (\textit{(combined with fluid pressure \textit{B60T 13/588})})
U B60T 13/10 · with fluid assistance, drive, or release
U B60T 13/12 · · the fluid being liquid
U B60T 13/16 · · · using pumps directly, i.e. without interposition of accumulators or reservoirs
B60T 13/18 · · · · with control of pump output delivery (e.g. by distributor valves (\textit{B60T 13/167 takes precedence}))

U B60T 13/24 · · the fluid being gaseous
U B60T 13/26 · · · Compressed-air systems
B60T 13/38 · · · · Brakes applied by springs or weights and released by compressed air (\textit{(B60T 13/261 takes precedence)})
U B60T 13/66 · · Electrical control in fluid-pressure brake systems
B60T 13/68 · · · by electrically-controlled valves (\textit{(B60T 13/662 and B60T 13/665 take precedence)})

**U B60T 15/00** Construction arrangement, or operation of valves incorporated in power brake systems and not covered by groups \textit{B60T 11/00 or B60T 13/00}(valve structures responsive to a speed condition \textit{B60T 8/34} ; valves in general \textit{F16K})

U B60T 15/02 · Application and release valves
B60T 15/36 · · Other control devices or valves characterised by definite functions (\textit{(electrically controlled valves in fluid-pressure brake systems \textit{B60T 15/027 , B60T 15/028})})

**U B60T 17/00** Component parts, details, or accessories of power brake systems not covered by groups \textit{B60T 8/00, B60T 13/00 or B60T 15/00} , or presenting other characteristic features (air compressors per se \textit{F04})

B60T 17/04 · Arrangements of piping, valves in the piping, e.g. cut-off valves, couplings or air hoses (traction couplings involving joints for supply lines, electric circuits, or the like \textit{B60D 1/62} ; couplings peculiar to railway vehicles for, or combined with, couplings or connectors for fluid conduits or electric cables \textit{B61G 5/06} ; pipes, cut-off valves, couplings, air hoses \textit{per se \textit{F16C , F16K , F16L}})
Purposes of road vehicle drive control systems not related to the control of a particular sub-unit, e.g. of systems using conjoint control of vehicle sub-units, or advanced driver assistance systems for ensuring comfort, stability and safety or drive control systems for propelling or retarding the vehicle (anti-lock brake systems (ABS) B60T 8/00))

RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES; OR ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERAILING OF RAIL VEHICLES; WHEEL GUARDS; WHEEL GUARDS, OBSTRUCTION REMOVERS, OR THE LIKE FOR RAIL VEHICLES (for vehicles in general B60; axles, or wheels B60B; tyres B60C; vehicle tyres B60C)

Hand carts having more than one axis carrying transport wheels; Steering devices therefor; Equipment therefor (convertible from one-axled to two-axled vehicle B62B 1/002)

characterised by provisions for nesting or stacking, e.g. shopping trolleys (collapsible shopping trolleys B62B 3/027)

nestable by means of pivoted supports or support parts, e.g. baskets (B62B 3/1476 takes precedence)

Accessories or details specially adapted for children’s carriages or perambulators (providing for travelling on snow B62B 19/00)

(Safety means for traffic, e.g. lights, reflectors, mirrors etc. (Signaling means for cycles B62J))

WARNING
Not complete, see also B62B 9/00

Perambulator bodies; Equipment therefor (collapsible or foldable B62B 7/06; convertible B62B 7/12)

involving parts that are adjustable, attachable or detachable (B62B 9/102, B62B 9/14 take precedence)

Accessories or details of sledges (propulsion devices for sledges B62M 27/00, B62M 29/00)

Steering controls, i.e. means for initiating a change of direction of the vehicle

vehicle-mounted

Steering columns

yieldable or adjustable, e.g. tiltable (padded linings associated with the steering column B60R 21/05)

NOTE

Mechanisms for locking columns at selected positions (locking of telescopic systems in general F16B 7/10)
Power-assisted or power-driven steering (controlling steering depending on driving conditions sensed and responded to B62D 6/00; for non-deflectable wheels B62D 11/00; fluid pressure servomotors in general F15B)

U B62D 5/06
fluid, i.e. using a pressurised fluid for most or all the force required for steering a vehicle

U B62D 5/20
specially adapted for particular type of steering gear or particular application (steering gears per se B62D 3/00; steering linkages not characterised by being power-assisted or power-driven B62D 7/00)

U B62D 5/22
for rack-and-pinion type {(pressure yokes B62D 3/123)}

U B62D 7/00
Steering linkage; Stub axles or their mountings (B62D 13/00 takes precedence; power-assisted or power-driven steering B62D 5/00)

U B62D 7/06
for individually-pivoted wheels, e.g. on king-pins

U B62D 7/14
the pivotal axes being situated in more than one plane transverse to the longitudinal centre line of the vehicle, e.g. all-wheel steering

B62D 7/15
characterised by means varying the ratio between the steering angles of the steered wheels {(B62D 7/148 takes precedence)}

U B62D 7/1518
{comprising a mechanical interconnecting system between the steering control means of the different axles}

B62D 7/1536
{provided with hydraulic assistance; (power-assisted fluid steering per se B62D 5/06)}

B62D 7/1545
{provided with electrical assistance; (power-assisted electrical steering per se B62D 5/04)}

B62D 7/1554
{comprising a fluid interconnecting system between the steering control means of the different axles; (power-assisted fluid steering per se B62D 5/06)}

B62D 7/1563
{provided with fluid control means; (B62D 7/1572 takes precedence)}

B62D 7/1581
{characterised by comprising an electrical interconnecting system between the steering control means of the different axles; (power-assisted electrical steering per se B62D 5/04)}

B62D 7/22
Arrangements for reducing or eliminating reaction, e.g. vibration, from parts, e.g. wheels, of the steering system {(dampers in general F16F)}

U B62D 11/00
Steering non-deflectable wheels; Steering endless tracks or the like

NOTE
Gearings of interest apart from this application are also classified in the relevant group of subclass F16H covering gearings per se

U B62D 11/02
by differentially driving ground-engaging elements on opposite vehicle sides

U B62D 11/06
by means of a single main power source

B62D 11/10
using gearings with differential power outputs on opposite sides, e.g. with twin-differential or epicyclic gears {(arrangements or mounting of transmissions in vehicles B60K 17/00; gearing in general F16H)}

B62D 25/00
Superstructure (or monocoque structure)sub-units; Parts or details thereof not otherwise provided for {(having impact absorbing means B62D 21/15; running-boards, steps, or the like as superstructure sub-unit B60R 3/00)}

B62D 25/02
Side panels {(B62D 33/046 takes precedence; sideboards for open load compartments B62D 33/023)}
B62D 25/08  · Front or rear portions (sub-frames for mounting engine or suspensions B62D 21/11))

B62D 25/20  · Floors or bottom sub-units (sub-frames for mounting engine or suspensions B62D 21/11 ; drip trays F16N 31/006)

B62D 27/00  Connections between superstructure (or understructure) sub-units (B62D 33/0207 , B62D 33/044 take precedence; between sub-units predominantly made of synthetic material B62D 29/048)

B62D 29/00  Superstructures, (understructures, or sub-units thereof) characterised by the material thereof (B62D 33/044 , B62D 33/048 take precedence)

U B62D 33/00  Superstructures for load-carrying vehicles (having impact absorbing means B62D 21/15 ; in which a load-carrying element is movable B60P; liners B60R 13/00 ; joining sheets or plates to one another or to strips or bars parallel to them F16B 5/00)

B62D 33/02  · Platforms; Open load compartments (Flat wagons including posts or standards B61D 3/08)

B62D 33/023  · Sideboard or tailgate structures (vehicle side panels in general B62D 25/02)

U B62D 33/027  · movable

B62D 33/03  · by swinging down (B62D 33/0273 takes precedence)

B62D 33/033  · removable (B62D 33/0273 takes precedence)

B62D 33/06  · Drivers’ cabs (overhead guards, e.g. against loads falling down B60R 21/11 ; roll-over protection B60R 21/13)

B62D 33/077  · characterised by the connection of the superstructure to the vehicle frame (B62D 33/06 takes precedence)

U B62D 35/00  Vehicle bodies characterised by streamlining

B62D 35/02  · Streamlining the undersurfaces (B62D 35/005 , B62D 35/007 , B62D 35/008 take precedence)

B62D 51/00  Motor vehicles characterised by the driver not being seated (wheeled carriers for golf bags A63B 55/08)

U B62D 53/00  Tractor-trailer combinations; Road trains (traction couplings other than fifth wheel coupling B60D (tracked vehicles comprising at least two articulated parts B62D 55/065))

B62D 53/02  · comprising a uniaxle tractor unit and a uniaxle trailer unit (see B60B 11/00 - B60B 11/08)

U B62D 55/00  Endless track vehicles (steering aspects B62D 11/00 ; characterised by the driver not being seated B62D 51/007)

B62D 55/02  · with tracks and additional ground wheels (for multi-purpose tractors B62D 49/0635)

B62D 55/04  · with tracks and alternative ground wheels, e.g. changeable from endless track vehicle into wheeled vehicle and vice versa (for multi-purpose tractors B62D 49/0635)

U B62D 55/06  · with tracks without ground wheels

B62D 55/065  · Multi-track vehicles, i.e. more than two tracks (soil-shifting machines E02F ; mining machines E21C)

U B62D 55/08  · Endless track units; Parts thereof

U B62D 55/14  · Arrangement, location, or adaptation of rollers

B62D 55/15  · · · Mounting devices, e.g. bushings, axles, bearings, sealings (with lubrication means B62D 55/092)
U B62D 55/18 · · Tracks (self-cleaning track links B62D 55/088)
    B62D 55/20 · · of articulated type, e.g. chains ((with lubrication means B62D 55/092))
    B62D 55/26 · · Ground engaging parts or elements ((tracks specially adapted for amphibious vehicles B60F 3/0015))

U B62D 57/00 Vehicles characterised by having other propulsion or other ground-engaging means than wheels or endless track, alone or in addition to wheels or endless track (sledges B62B ; motor sledges B62M)

U B62D 57/02 · with ground-engaging propulsion means, e.g. walking members
    B62D 57/036 · · screw type, e.g. Archimedian screw ((amphibious vehicles comprising screw-type ground-engaging means B60F 3/0023))

U B62D 57/00 Vehicles characterised by having other propulsion or other ground-engaging means than wheels or endless track, alone or in addition to wheels or endless track (sledges B62B ; motor sledges B62M)

U B62D 57/02 · with ground-engaging propulsion means, e.g. walking members
    B62D 57/036 · · screw type, e.g. Archimedian screw ((amphibious vehicles comprising screw-type ground-engaging means B60F 3/0023))

U B62D 57/00 Vehicles characterised by having other propulsion or other ground-engaging means than wheels or endless track, alone or in addition to wheels or endless track (sledges B62B ; motor sledges B62M)

U B62D 57/02 · with ground-engaging propulsion means, e.g. walking members
    B62D 57/036 · · screw type, e.g. Archimedian screw ((amphibious vehicles comprising screw-type ground-engaging means B60F 3/0023))

U B62D 61/00 Motor vehicles or trailers, characterised by the arrangement or number of wheels, not otherwise provided for, e.g. four wheels in diamond pattern
    B62D 61/10 · with more than four wheels ((tractors of the low ground pressure type B62D 49/002))

U B62D 65/00 Designing, manufacturing, e.g. assembling, facilitating disassembly, or structurally modifying motor vehicles or trailers, not otherwise provided for

U B62D 65/02 · Joining sub-units or components to, or positioning sub-units or components with respect to, body shell or other sub-units or components
    B62D 65/06 · · the sub-units or components being doors, windows, openable roofs, lids, bonnets, or weather strips or seals therefor ((assembling sealing arrangements with vehicle parts, e.g. doors, windows B60J 10/0088))
    B62D 65/18 · · Transportation, conveyor or haulage systems specially adapted for motor vehicle or trailer assembly lines ((conveyers and haulage in general B65G))

Project: N/A (B63B)

U B63B 1/00 Hydrodynamic or hydrostatic features of hulls or of hydrofoils (keels B63B 3/38 ; determining hydrodynamic or hydrostatic features B63B 9/00 ; hulls peculiar to submarines B63B 3/13 ; decreasing pitch, roll or like unwanted vessel movements by using foils or acting on ambient water B63B 39/06)

U B63B 1/02 · deriving lift mainly from water displacement (B63B 1/16 takes precedence)
U B63B 1/10 · · with multiple hulls
    B63B 1/12 · · · the hulls being interconnected rigidly ((B63B 1/107 takes precedence))
U B63B 1/16 · deriving additional lift from hydrodynamic forces
    B63B 1/24 · · of hydrofoil type ((controlling attitude or depth of underwater vessels by hydrofoils or the like B63G 8/18))

WARNING
This group is pending a reorganisation, also documents covered by group B63B 1/26 are within this group

U B63B 5/00 Hulls characterised by their construction of non-metallic material
    B63B 5/24 · · made predominantly of plastics ((surf boards B63B 35/7909))

U B63B 9/00 Methods of designing, building, maintaining, converting, refitting, repairing, or determining properties of vessels, not otherwise provided for (shuttering for building concrete vessels E04G)
    B63B 9/02 · Using towing tanks or model basins for designing ((arrangements in or on ship testing tanks or water tunnels G01M 10/00))
Project: N/A (B63B)  CPC - 2015.05

U B63B 13/00 Conduits for emptying or ballasting; Self-bailing equipment; Scuppers (draining means for hatches B63B 19/26; centrifugal bilge-water separators B04; arrangements of installations for treating ballast water B63J 4/002; pipes in general F16L)

B63B 13/02 · Ports for passing water through vessels’ sides ((jet propulsors with clogging prevention means B63H 11/01))

B63B 17/00 Vessel parts, details, or accessories, not otherwise provided for (vehicle fittings for preventing or indicating unauthorised use or theft of vehicles in general B60R 25/00; propeller guards, line cutters or other means for protecting propellers or rudders B63H 5/165; protection of power legs of outboard propulsion units B63H 20/36; locking devices for boats, surfboards or parts or accessories thereof E05B 73/007)

WARNING Not complete pending a reorganisation; for documents concerning protective caps, or anti-theft devices other than using keys, see B63J 99/00

U B63B 21/00 Tying-up; Shifting, towing, or pushing equipment; Anchoring (of buoys B63B 22/04; dynamic anchoring B63H 25/00; equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. for landing purposes, E02B)

WARNING Group B63H 21/00 is no longer used for classification of adaptations of ropes, hawsers, or the like, or parts thereof. Documents are in the process of being reorganised to B63B 21/20

B63B 21/04 · Fastening or guiding equipment for chains, ropes, hawsers, or the like ((means for fastening cables or ropes in general F16G 11/00))

B63B 21/18 · Stoppers for anchor chains ((anchor capstans B66D 1/72))

U B63B 21/24 · Anchors

B63B 21/30 · · rigid when in use ((B63B 21/28 takes precedence))

B63B 21/38 · · pivoting when in use ((B63B 21/28 takes precedence))

U B63B 22/00 Buoys (floating decoys, e.g. for waterfowl A01M 31/06; means for indicating the location of underwater objects B63C 7/26; life-buoys, e.g. rings B63C 9/08; mountings of acoustic transducer in underwater equipment, e.g. sonobuoys G10K 11/006; electric cables supported on or from floats H02G 9/12))

U B63B 22/04 · {Fixations or other anchoring arrangements

B63B 22/06 · · with means to cause the buoy to surface in response to a transmitted signal ((B63B 22/023 takes precedence))

U B63B 22/24 · container type, i.e. having provision for the storage of material

B63B 22/28 · · submerged when not in use ((B63B 22/023 takes precedence))

WARNING Not complete, pending a reorganisation; see B63B 22/023 and B63B 22/24

U B63B 25/00 Load-accommodating arrangements, e.g. stowing, trimming; Vessels characterised thereby (trimming otherwise than by cargo division, e.g. by use of ballast B63B 43/06, B63B 43/08; constructive aspects of cargo spaces B63B 11/00; hatches, hatchways B63B 19/12)

U B63B 25/02 · for bulk goods

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Project: N/A (B63B)

B63B 25/08

· fluid \{(constructional features of bunkers \textbf{B63B 11/04} ; tanks for fuel or the like not forming bunkers \textbf{B63B 17/0027})\}

\textbf{WARNING}

Documents in \textbf{B63B 25/08} and subgroups concerning bunkers and other tanks for fuel or the like are in the process of being reclassified to \textbf{B63B 11/04} and \textbf{B63B 17/0027}

\textbf{U B63B 27/00}

\textbf{Loading or unloading cargo or passengers (self-discharging barges or lighters \textbf{B63B 35/30} ; shore-based \textbf{B65G} elevators, escalators or moving walkways per se \textbf{B66B} ; floating cranes \textbf{B66C 23/52} ; loading or unloading devices per se, see the relevant subclasses, e.g. \textbf{B65G}, \textbf{B66C}, \textbf{B67D})}

\textbf{WARNING}

The scope of this group is broader than the scope of the corresponding IPC group, and includes the scope of the IPC2 subgroups \textbf{B63B 27/02}, \textbf{B63B 27/06}, and \textbf{B63B 27/20}

\textbf{U B63B 27/30}

· \{Arrangement of ship-based loading or unloading equipment\} for transfer at sea between ships or between ships and off-shore structures

\textbf{WARNING}

Not complete, pending a reorganisation, see \textbf{B63B 22/021}, \textbf{B63B 35/44}, and subgroups

\textbf{B63B 27/34}

· using pipe-lines \{(Anchoring arrangements for special vessels with mooring turrets \textbf{B63B 21/507} ; Buoys specially adapted for mooring a vessel and for transferring fluids , e.g. liquids \textbf{B63B 22/021})\}

\textbf{WARNING}

Not complete, pending a reorganisation, see \textbf{B63B 21/507}, \textbf{B63B 22/021}, \textbf{B63B 35/44} and subgroups

\textbf{U B63B 29/00}

\textbf{Accomodation for crew or passengers not otherwise provided for}

\textbf{B63B 29/16}

· Soil water discharges \{(arrangements of installations for treating waste water or sewage \textbf{B63J 4/006})\}

\textbf{U B63B 35/00}

\textbf{Vessels or like floating structures adapted for special purposes (vessels characterised by load-accommodating arrangements \textbf{B63B 25/00} ; fire-fighting vessels \textbf{A62C 29/00} ; submarines, mine-layers or mine-sweepers \textbf{B63G} ; large containers for use in or under water \textbf{B65D 88/78} ; \{ Advertising on ships or other floating means \textbf{G09F 21/18}\})}

\textbf{B63B 35/28}

· Barges or lighters \{(underwater-towed barges \textbf{B63G 8/42} ; for transporting logs \textbf{B63B 35/62})\}

\textbf{B63B 35/40}

· for transporting marine vessels \{(load accomodation for floating barges and the like \textbf{B63B 25/006})\}

\textbf{B63B 35/44}

· Floating buildings, stores, drilling platforms, or workshops, e.g. carrying water-oil separating devices \{(construction methods for floating offshore platforms \textbf{B63B 9/065})\}

\textbf{WARNING}

This group and its subgroups are pending a reorganisation, also documents covered by groups \textbf{B63B 27/30}, \textbf{B63B 27/32} and \textbf{B63B 27/34} are within this group and its subgroups.

\textbf{B63B 39/00}

\textbf{Equipment to decrease pitch, roll, or like unwanted vessel movements; Apparatus for indicating vessel attitude \{(for amphibious vehicles \textbf{B60F 3/0038})\}}
B63B 41/00  Drop keels, e.g. centre boards or side boards {; Collapsible keels, or the like, e.g. telescopically; Longitudinally split hinged keels (keels integral with hull B63B 3/38; foils or keels on surf-boards B63B 35/7906; stabilising foils B63B 39/06)}

U B63B 43/00  Improving safety of vessels, e.g. damage control, not otherwise provided for (fire-fighting in ships A62C 3/10)

U B63B 43/02  · reducing risk of capsizing or sinking (by means of watertight doors in bulkheads B63B 43/24)

B63B 43/10  · · by improving buoyancy {{amphibious cycles B60F 3/0038}}

B63B 43/18  · · preventing collision (or grounding); reducing collision damage {{(reducing pollution by collision B63B 25/082)}}

Project: N/A (B63C)

U B63C 7/00  Salvaging of disabled, stranded, or sunken vessels; Salvaging of vessel parts or furnishings, e.g. of safes; salvaging of other underwater objects (means for searching for underwater objects B63C 11/48)

NOTE in this group the following indexing codes are used:
· B63B 2702/02, B63B 2738/00, B63B 2738/04

WARNING this group is pending a reorganisation; also documents covered by groups B63C 7/006 are within this group

B63C 7/16  · Apparatus engaging vessels or objects {{B63C 7/006 takes precedence}}

U B63C 11/00  Equipment for dwelling or working underwater; Means for searching for underwater objects (composition of chemical substances for use in breathing apparatus A62D 9/00; swimming aids or equipment A63B 31/00 to A63B 35/00; submarines B63G 8/00)

U B63C 11/02  · Diving equipment

B63C 11/12  · · Diving masks {{(swimming helmets, swimming goggles A63B 33/00)}}

B63C 11/30  · · Ballast {{(weights worn on user`s body for exercising A63B 21/065)}}

U B63C 11/34  · Diving chambers (or underwater vessels, e.g. unmanned,)with mechanical link, e.g. cable, to a base (manipulators B25J; {externally attached cofferdams and the like B63B 17/0018; } diving chambers without mechanical link to a base B63G 8/00; caissons adapted to laying foundations E02D 23/00 to E02D 27/00)

U B63C 11/36  · · of closed type

B63C 11/42  · · · with independent propulsion or direction control {{(underwater vessels adapted for special purposes B63G 8/001)}}

WARNING this group is pending a reorganisation; also documents covered by group B63G 8/001 are within this group

B63C 11/46  · Divers` sleds or like craft, i.e. craft on which man in diving-suit rides {{(devices fixed to the body of a swimmer, e.g. diver, or held in his hands, and propelling the swimmer by muscle power or by a motor A63B 35/00)}}
### Project: N/A (B63H)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B63H 3/00</td>
<td>Propeller-blade pitch changing {((Aircraft propellers B64C 11/30; Rotors of turbines F01D 7/00; Axial wind motors F03D 7/022; Axial-flow pumps F04D 29/00))}</td>
</tr>
<tr>
<td>B63H 3/02</td>
<td>· actuated by control element coaxial with propeller shaft, e.g. the control element being rotary {((B63H 3/002 takes precedence, fluid actuated B63H 3/081))}</td>
</tr>
<tr>
<td>U B63H 5/00</td>
<td>Arrangements on vessels of propulsion elements directly acting on water</td>
</tr>
<tr>
<td>U B63H 5/07</td>
<td>· of propellers (forming part of outboard units or Z-drives)</td>
</tr>
<tr>
<td>U B63H 5/18</td>
<td>· of emergency propellers, e.g. arranged at the side of the vessel</td>
</tr>
<tr>
<td></td>
<td><strong>WARNING</strong></td>
</tr>
<tr>
<td></td>
<td>this group is pending a reorganisation; also documents covered by group B63H 5/20 are within this group</td>
</tr>
<tr>
<td>B63H 5/20</td>
<td>· · movable from a working position to a non-working position {((movable arrangements of propellers in general B63H 5/125; outboard propulsion units in general B63H 20/00; steering or dynamic anchoring by propellers used therefore only, or by rudders carrying propellers B63H 25/42))}</td>
</tr>
<tr>
<td></td>
<td><strong>WARNING</strong></td>
</tr>
<tr>
<td></td>
<td>This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group B63H 5/18</td>
</tr>
<tr>
<td>U B63H 11/00</td>
<td>Effecting propulsion by jets, i.e. reaction principle (steering by{auxiliary}]jet action,(rudders carrying jets)B63H 25/46 ; power plant per se, see the relevant classes)</td>
</tr>
<tr>
<td>U B63H 11/02</td>
<td>· the propulsive medium being ambient water</td>
</tr>
<tr>
<td>U B63H 11/10</td>
<td>· · having means for deflecting jet or influencing cross-section thereof</td>
</tr>
<tr>
<td></td>
<td><strong>WARNING</strong></td>
</tr>
<tr>
<td></td>
<td>Documents concerning deflection of the jet into a direction substantially parallel to the plane of the pump outlet are in the process of being reorganised to B63H 11/101</td>
</tr>
<tr>
<td>B63H 11/107</td>
<td>· · Direction control of propulsive fluid {((B63H 11/101 takes precedence))}</td>
</tr>
<tr>
<td></td>
<td><strong>WARNING</strong></td>
</tr>
<tr>
<td></td>
<td>Documents concerning means for deflecting jet into a propulsive direction substantially parallel to the plane of the pump outlet opening are in the process of being reorganized to B63H 11/101</td>
</tr>
<tr>
<td>U B63H 20/00</td>
<td>Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. &quot;outboard motors&quot;, Z-drives {with level bridging shaft arranged substantially outboard}(power plants per se, see the relevant classes); Arrangements thereof on vessels {((transom panels for outboard motors on inflatable boats B63B 7/087; tug-type floating propeller units B63B 35/665; rudders carrying propellers B63H 25/42; rudders carrying jets B63H 25/46; engines of outboard propulsion units F02B 61/045))}</td>
</tr>
<tr>
<td></td>
<td><strong>WARNING</strong></td>
</tr>
<tr>
<td></td>
<td>Not complete pending a reclassification; see also B63H 5/1252, as well as B63H 21/26 and subgroups</td>
</tr>
</tbody>
</table>
B63H 20/24  · {Arrangements, apparatus and methods for handling exhaust gas in outboard drives, e.g. exhaust gas outlets (in engines, e.g. outboard marine engines, F01N)}

WARNING
This group and its subgroups are not complete, pending a reorganisation; see B63H 21/32, B63H 21/38 and B63B 2770/00

B63H 20/28  · {Arrangements, apparatus and methods for handling cooling-water in outboard drives, e.g. cooling-water intakes (cooling circuits for outboard marine engines F01P 3/202)}

WARNING
This group and its subgroups are not complete, pending a reorganisation; see B63H 21/38 and B63B 2770/00

B63H 20/30  · {Cooling-water intakes for flushing (circuits for flushing outboard marine engines F01P 3/205)}

B63H 20/32  · Housings (air intakes for outboard engines F02M 35/167)

B63H 20/36  · Transporting or testing stands (hand carts for transporting outboard units B62B; measuring torque G01L 3/00, measuring thrust of propellers G01L 5/133, testing in general G01M); Use of outboard propulsion units as pumps; Protection of power legs (e.g. when not in use)

U B63H 21/00  Use of propulsion power plant or units on vessels (use of outboard propulsion units B63H 20/00; hull reinforcements for carrying propulsion power plant or units B63B 3/70; propulsion of submarines B63G 8/08; propulsion power plant or units per se, see the relevant classes)

NOTE
This group comprises arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements

WARNING
This group is pending a reorganisation; also documents covered by group B63H 21/36 are within this group

U B63H 21/12  · the vessel being motor-driven (B63H 21/175, B63H 21/18 take precedence; cooling circuits with liquid-to-liquid heat-exchange relative to marine vessels F01P 3/207)

WARNING
Group B63H 21/12 is no longer used for classification of vessels being motor-driven by electric motor, powered by land vehicle supported by vessel, and powered by nuclear energy. These documents are in the process of being reorganised to groups B63H 21/17, B63H 21/175, and B63H 21/18 respectively

B63H 21/14  · relating to internal-combustion engines (of outboard type B63H 20/00)

B63H 21/165  · by hydraulic fluid motor, i.e. wherein a liquid under pressure is utilised to rotate the propelling means (transmission from power plant or unit to propeller using fluid gearing per se B63H 23/26)

WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group B63H 21/12

U B63H 21/24  · the vessels being small craft, e.g. racing boats
B63H 21/26

- of outboard type; Outboard propulsion power units movably installed for
  steering, reversing, tilting, or the like (transom panels for outboard motors
  for inflatable boats B63B 7/087; floating propeller units B63B 35/665).

WARNING

Group B63H 21/26 and subgroups are no longer used for classification.
Documents are in the process of being reorganised to B63H 5/125, and
subgroups, to B63H 20/00, and subgroups, and to B63H 25/42.

B63H 21/32

- Arrangements of propulsion-unit exhaust uptakes; Funnels peculiar to vessels;
  (Small watercraft exhaust arrangements, e.g. under-water), (engine exhausts
  in general F01N; flue devices for furnaces in general F23J; exhaust gas
  outlets forming part of outboard propulsion units or Z-drives B63H 20/24).

WARNING

Group B63H 21/32 is no longer used for classification of documents dealing
with gas exhaust outlets forming part of outboard propulsion units or Z-drives.
Respective documents are in the process of being reorganised to groups
B63H 20/24 and B63H 20/26.

U B63H 23/00

- Transmitting power from propulsion power plant to propulsive elements
  (changing pitch or propellers B63H 3/00; adaptation of transmission
to allow adjustment in location or direction of propellers B63H 5/125;
  transmission between wind motors and propulsive elements B63H 13/00;
in outboard propulsion units B63H 20/14; adaptation of transmission
to allow adjustment of location of propeller B63H 20/08; adaptations of
transmissions to allow steering or dynamic anchoring by propellers carried
on rudders B63H 25/42; for vehicles in general B60K; driving auxiliary
machinery B63J; transmission elements per se F16).

U B63H 23/22

- with non-mechanical gearing

B63H 23/24

- electric (dynamo-electric machines H02K).

WARNING

This group is not complete pending a reclassification; also documents
covered by group B63H 21/17 are in this group.

Project: N/A (B64C)

U B64C 1/00

- Fuselages; Constructional features common to fuselages, wings,
  stabilising surfaces and the like (aerodynamical features common to
  fuselages, wings, stabilising surfaces, and the like B64C 23/00; flight-deck
  installations B64D).

B64C 1/22

- Other structures integral with fuselages to facilitate loading (e.g. cargo bays,
  cranes (cargo door type ramps B64C 1/1415)).

B64C 1/38

- Constructions adapted to reduce effects of aerodynamic or other external
  heating (cooling structural parts of aircrafts with air flow B64D 13/006).

B64C 1/40

- Sound or heat insulation, e.g. using insulation blankets (insulating elements
  for vehicles, in general B60R 13/08).

U B64C 3/00

- Wings (stabilising surfaces B64C 5/00; ornithopter wings B64C 33/02).

B64C 3/36

- Structures adapted to reduce effects of aerodynamic or other external
  heating (cooling structural parts of aircrafts with air flow B64D 13/006).
U B64C 11/00 Propellers, e.g. of ducted type; Features common to propellers and rotors for rotorcraft (rotors specially adapted for rotorcraft B64C 27/32)

NOTE
Documents classified in B64C 11/001 - B64C 11/008 which also contain relevant information, covered by other subgroups of B64C 11/00, are also classified in the appropriate subgroup of B64C 11/00

B64C 11/46 · Arrangements of or constructional features peculiar to multiple propellers (B64C 11/306 takes precedence)

U B64C 25/00 Alighting gear (air-cushion alighting gear B60V 3/08)

U B64C 25/32 · characterised by the ground or like engaging elements (arrester hooks B64C 25/68)

U B64C 25/42 · · Arrangements or adaptations of brakes (the ground braking force being regulated, at least in part, by a speed condition, e.g. acceleration or deceleration of the ground engaging alighting gear, B60T 8/32)

U B64C 25/44 · · · Actuating mechanisms

B64C 25/46 · · · · Brake regulators for preventing skidding or aircraft somersaulting ((anti-skidding regulators; electric or electronic controllers therefor B60T 8/1703))

U B64C 27/00 Rotorcraft; Rotors peculiar thereto (alighting gear B64C 25/00)

U B64C 27/32 · Rotors (features common to rotors and propellers B64C 11/00)

U B64C 27/46 · · Blades

B64C 27/467 · · · Aerodynamic features ((B64C 27/463 takes precedence))

B64C 27/473 · · · Constructional features ((B64C 27/463 takes precedence))

U B64C 39/00 Aircraft not otherwise provided for

B64C 39/06 · having disc- or ring-shaped wings ((B64C 39/001 takes precedence))

B64C 39/08 · having multiple wings ((B64C 39/06 takes precedence))

B64C 39/10 · All-wing aircraft ((B64C 39/001 takes precedence))

Project: MP0118 (B64D)

M B64D EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF POWERPLANTS, POWER PLANTS OR PROPULSION TRANSMISSIONS IN AIRCRAFT

WARNING
The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B64D 15/18 covered by B64D 15/16 B64D 25/102
covered by B64D 25/10 B64D 25/105 covered by B64D 25/10
B64D 25/10 covered by B64D 25/108 B64D 25/112
B64D 25/11 covered by B64D 25/10 B64D 25/115 covered by B64D 25/10
B64D 25/10 covered by B64D 25/118 covered by B64D 25/10

Project: N/A (B64D)

U B64D 17/00 Parachutes (non canopied parachutes B64D 19/00)

U B64D 17/22 · Load suspension

B64D 17/36 · · incorporating friction devices or frangible connections to reduce shock loading of canopy ((B64D 17/343, B64D 17/346 take precedence))
Emergency apparatus or devices, not otherwise provided for (parachutes B64D 17/00, B64D 19/00; jettisoning of fuel tanks or fuel per se B64D 37/00; specially adapted for protection against criminal attack, e.g. anti-hijacking systems B64D 45/0015; safety belts or body harnesses in general A62B 35/00; safety belts or body harnesses for land vehicles B60R 22/00; jettisonable parts of fuselage facilitating emergency escape B64C)

GROUND OR AIRCRAFT-CARRIER-DECK INSTALLATIONS SPECIALLY ADAPTED FOR USE IN CONNECTION WITH AIRCRAFT; DESIGNING, MANUFACTURING, ASSEMBLING, CLEANING, MAINTAINING OR REPAIRING AIRCRAFT, NOT OTHERWISE PROVIDED FOR

NOTES
1. In this subclass, the term "installation" embraces equipment, including mobile equipment, peculiar to use in connection with aircraft and not fitted thereto
2. The term "ground installations" in this subclass embraces waterborne installations

Cosmonautic vehicles

Containers having bodies formed in one piece, e.g. by casting metallic material, by moulding plastics, by blowing vitreous material, by throwing ceramic material, by moulding pulped fibrous material, by deep-drawing operations performed on sheet material (by winding, bending, or folding paper B65D 3/00, B65D 5/00; specially constructed to be opened by cutting, piercing, or tearing of wall portions B65D 17/00; pallets B65D 19/00; details of bottles or of jars B65D 23/00; bundles of articles held together by packaging elements for convenience of storage or transport, e. g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, B65D 71/00)

Jars, e.g. for preserving foodstuffs {(B65D 81/3837 takes precedence)}

Boxes or like containers with side walls of substantial depth for enclosing contents {{B65D 43/162, B65D 81/02, B65D 81/3813 take precedence}}

Thin-walled containers, e.g. formed by deep-drawing operations {{B65D 1/165 takes precedence}}

Baskets or like containers of skeleton or apertured construction, {{crates for bottles or like containers B65D 1/243}}

Containers having bodies or peripheral walls of curved or partially curved cross-section made by winding or bending paper without folding along defined lines (with end walls of different materials B65D 15/00)

with double walls; with walls incorporating air-chambers; with walls made of laminated material {{for thermal insulating purposes B65D 81/3818}}
Containers of polygonal cross-section, e.g. boxes, cartons, trays, formed by folding or erecting one or more blanks made of paper (pallets B65D 19/00; bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, B65D 71/00; forming foldable or erectable blanks B31B)

Details of containers or of foldable or erectable container blanks

Integral, inserted or attached portions forming internal or external fittings (not used, see subgroups)

External stands or display elements for contents ((adjustable or foldable display stands made of cardboard, paper or the like, without packaging function A47F 5/11))

Linings or internal coatings, (e.g. pre-formed trays provided with a blow-or thermoformed layer) (to protect the articles from mechanical damage B65D 81/127)

Linings spaced appreciably from container wall ((for thermal insulating purposes B65D 81/3853))

Loose, (or loosely attached), linings ((made only of relatively rigid sheet material B65D 5/566))

External coverings or coatings ((B65D 5/4245, B65D 5/4262 take precedence))

Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of metal (specially constructed to be opened by cutting, piercing, or tearing of wall portions B65D 17/00; pallets B65D 19/00; tanks for domestic water storage heaters F24H 1/181)

Characterised by shape

of curved cross-section, e.g. cans of circular or elliptical cross-section ((thermally insulated B65D 81/3813, B65D 81/3837))

Characterised by wall construction or by connections between walls

with double walls, e.g. double end walls ((for thermal insulating purposes B65D 81/3806, B65D 81/3818, B65D 81/383))

Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of wood or substitutes therefor

Containers of curved cross-section, e.g. cylindrical boxes ((thermally insulated B65D 81/3813, B65D 81/3837))

made up of staves, e.g. barrels for liquids ((thermally insulated barrels, B65D 81/3802))

with double end walls, e.g. double bottoms ((for thermal insulating purposes B65D 81/3806, B65D 81/3818, B65D 81/383))

Drums or barrels ((thermally insulated B65D 81/3802))
B65D 11/10  · of polygonal cross-section (and all parts being permanently connected to each other (B65D 11/18 takes precedence))

U B65D 17/00  Containers specially constructed to be opened by cutting or piercing, or by tearing of frangible member or portion (opening devices for containers made by winding, bending, or folding paper B65D 3/00, B65D 5/00; frangible inner closure members associated with caps, lids, or covers B65D 51/20; opening devices added or incorporated during filling or closing of containers B65D 77/30; separate devices for opening closed containers B67B 7/00)

B65D 17/16  · Opening arrangements or devices incorporated in or attached to, containers (B65D 17/50 takes precedence)

U B65D 21/00  Nestable, stackable, or joinable containers; Containers of variable capacity (large containers B65D 88/00; containers for display purposes A47B 87/02)

B65D 21/02  · Containers specially shaped, or provided with fittings or attachments, to facilitate nesting, stacking, or joining together (stackable containers of polygonal cross-section formed by folding or erecting blanks made of paper B65D 5/001)

U B65D 21/0209  · (stackable or joined together one-upon-the-other in the upright or upside-down position (B65D 21/0234, B65D 21/0235 take precedence))

B65D 21/0228  · · (Containers joined together by screw-, bayonet-, snap-fit or the like, (B65D 21/0211, B65D 21/0231 take precedence))

B65D 21/06  · · with movable parts adapted to be placed in alternative positions for nesting the containers when empty and for stacking them when full (without means for nesting B65D 21/0226)

U B65D 23/00  Details of bottles or jars not otherwise provided for (closure-securing elements B65D 45/00)

U B65D 23/12  · Means for the attachment of smaller articles

B65D 23/14  · · of tags, (labels, cards, coupons, decorations or the like (B65D 23/008 takes precedence))

U B65D 25/00  Details of other kinds or types of rigid or semi-rigid containers

U B65D 25/02  · Internal fittings (of containers made by folding or erecting blanks made of paper B65D 5/44)

B65D 25/10  · · Devices to locate articles in containers (for protecting articles from mechanical damage B65D 81/02)

U B65D 25/20  · External fittings (of containers made by folding or erecting blanks made of paper B65D 5/44)

B65D 25/205  · · (Means for the attachment of labels, cards, coupons or the like; (Cards or coupons for the other types of rigid or semi-rigid containers B65D 25/36 takes precedence))

B65D 31/00  Bags or like containers made of paper and having structural provision for thickness of contents (with shock-absorbing properties B65D 81/03)

B65D 31/04  · with multiple walls (B65D 81/3881 takes precedence; for shock absorbing purposes B65D 81/03)

U B65D 33/00  Details of, or accessories for, sacks or bags

B65D 33/01  · Ventilation or drainage of bags, (e.g. disaligned apertures, labyrinth welds (pressure-relief valves comprising at least one elastic element B65D 77/225; connection of valves to inflatable elastic bodies B60C 29/00))

B65D 33/02  · Local reinforcements or stiffening inserts, e.g. wires, strings, strips, frames (B65D 33/007 takes precedence)
· Windows or other apertures, e.g. for viewing contents \( \text{(ventilation apertures \textit{B65D 33/01}; windows for level indication \textit{B65D 33/004})} \)

· Handles \( \text{(forming part of the closing arrangement \textit{B65D 33/16})} \)

· End- or aperture-closing arrangements or devices (values of valve bags \( \text{B65D 31/14}; \) removable stoppers or caps \( \text{B65D 39/00}, \text{B65D 41/00} \); closures of filled bags \( \text{B65D 77/10}; \) closing filled bags in association with packaging \( \text{B65B 7/00}, \text{B65B 51/00} \))

· Riveting; Dovetailing; Screwing; using press buttons or slide fasteners \( \text{(slide fasteners per se \textit{A44B 19/00})} \)

· using staples or stitches (\( \text{\textit{B65D 33/1641 takes precedence}} \))

· Deformable or resilient metal or like strips or bands (\( \text{\textit{B65D 33/1616 takes precedence}} \))

· with special means for indicating unauthorised opening (\( \text{\textit{B65D 33/2516 takes precedence}} \))

· Pliable tubular containers adapted to be permanently (or temporarily) deformed to expel contents, e.g. collapsible tubes for toothpaste or other plastic or semi-liquid material; Holders therefor (\( \text{\textit{packages for tubes \textit{B65D 85/14})} \))

· Holders for collapsible tubes (\( \text{\textit{B65D 51/249 takes precedence}} \))

· Caps, e.g. crown caps, crown seals, i.e. members having parts arranged for engagement with the external periphery of a neck or wall defining a pouring opening or discharge aperture; Protective cap-like covers for closure members, e.g. decorative covers of metal foil or paper (\( \text{\textit{B65D 45/00 takes precedence}} \); combinations of caps and protective cap-like covers \( \text{\textit{B65D 51/18}} \); making closures by working metal sheet \( \text{\textit{B21D 51/44}} \); affixing labels \( \text{\textit{B65C 3/06}} \))

· Caps or cap-like covers without lines of weakness, tearing strips, tags, or like opening or removal devices

· Snap-on caps or cap-like covers

· non-metallic, e.g. made of paper or plastics (\( \text{\textit{B65D 41/17 takes precedence}} \))

· Caps or cap-like covers with lines of weakness, tearing-strips, tags, or like opening or removal devices, e.g. to facilitate formation of pouring openings

· Snap-on caps or cap-like covers

· non-metallic, e.g. made of paper, plastics (\( \text{\textit{B65D 41/47 takes precedence}} \))

· Lids or covers for rigid or semi-rigid containers (for cooking vessels \( \text{\textit{A47J 36/06}} \); covers for pressure vessels in general \( \text{\textit{F16J 13/00}} \))

· Removable lids or covers (with means for piercing, cutting, or tearing a fragile inner closure \( \text{\textit{B65D 51/22}} \))

· having a peripheral flange fitting over the rim of the container (\( \text{\textit{(not in use, covered by \textit{B65D 43/0222 and \textit{B65D 43/0274 + L65D43 codes})}} \))

· Non-removable lids or covers

· Devices for retaining in open position (\( \text{\textit{(holding lids in open position in general \textit{E05C 17/00}; hinges with means for holding open \textit{E05D 11/10})}} \))

· Mechanisms for opening or closing, e.g. pedal-operated (\( \text{\textit{(for refuse receptacles \textit{B65F 1/1623})}} \))
Clamping or other pressure-applying devices for securing or retaining closure members (screw-threaded or bayonet connections between stoppers or caps and containers B65D 39/08, B65D 41/04, B65D 41/34; expansible stoppers B65D 39/12; for pressure vessels in general F16J 13/00)

- for applying axial pressure to engage closure with sealing surface
- Annular members, e.g. with snap-over action, screw-threaded (B65D 45/32 takes precedence)

Closures with filling and discharging, or with discharging, devices (dispensers for liquid soap A47K 5/12; desk equipment for applying liquid by contact with surfaces B43M 11/00; fluid delivery valves in general F16K 21/00)

- with pouring spouts or tubes; with discharge nozzles or passages (with slidable spouts B65D 47/26)
- having articulated or hinged closures (B65D 55/16 takes precedence)
- comprising hand-operated members for controlling discharge (closures with liquid-dispensing taps or cocks B67D 3/04)

Closures not otherwise provided for (covers or similar closures as engineering elements for pressure vessels in general F16J 13/00)

- Arrangements of closures with protective outer cap-like covers or of two or more co-operating closures (secondary protective cap-like outer covers for caps B65D 41/62; B65D 51/247 takes precedence)
- Caps, lids, or covers co-operating with an inner closure arranged to be opened by piercing, cutting, or tearing (B65D 51/185 takes precedence; co-operating with an auxiliary container for additional articles or materials B65D 51/28)
- combined (or co-operating) with auxiliary devices for non-closing purposes
- with auxiliary containers for additional articles or materials (B65D 51/247 takes precedence)

Accessories for container closures not otherwise provided for

- Locking devices; Means for discouraging or indicating unauthorised opening or removal of closure (protective covers for bottles B65D 23/08; B65D 41/32 takes precedence) protective cap-like outer covers for bottle or jar closures B65D 41/28; pressure-applying means B65D 45/00)
- Locking pins (destructible locking pins B65D 55/06)

Internal frames or supports for flexible articles, e.g. stiffeners; Separators for articles packaged in stacks or groups, e.g. for preventing adhesion of sticky articles (B65D 71/70 takes precedence)

Plugs, sleeves, caps, or like rigid or semi-rigid elements for protecting parts of articles or for bundling articles, e.g. protectors for screw-threads, end caps for tubes or for bundling rod-shaped articles (stopping flow from or in pipes or hoses by means of plugs F16L 55/11, by means of caps F16L 55/115; protection of pipes or objects of similar shape against external or internal damage or wear F16L 57/00)
Wrappers or flexible covers; Packaging materials of special type or form
(wrappers or envelopes with shock-absorbing properties B65D 81/03; layered products per se B32B; materials per se, see the relevant classes)

NOTE
Attention is drawn to the definition of "packaging element" in Note (5) following the title of this subclass

Packaging materials of special type or form
Applications of laminates for particular packaging purposes (B65D 1/0215, B65D 1/28, B65D 3/22, B65D 5/0281, B65D 5/563, B65D 9/30, B65D 29/02, B65D 31/02, B65D 75/26, B65D 77/2024, B65D 81/1275, B65D 81/3811, B65D 81/3823, B65D 81/3834, B65D 81/3846, B65D 81/3858, B65D 81/3874, B65D 81/3886, B65D 81/3897 take precedence; laminates per se or laminated packages characterised by the composition or)

NOTE
A packaging purpose covered by another group of B65D should be classified in that group of B65D and in B32B]

Kinds or types of packaging elements not otherwise provided for (B65D 5/425 takes precedence)

Bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carrier for plural receptacles such as beer cans, pop bottles; Bales of material (binding of hay or straw A01D, A01F 1/00; bundling or baling B65B, e.g. B65D 13/00, B65D 27/00)

Packaging elements holding or encircling completely or almost completely the bundle of articles, e.g. wrappers
Wrappers shrunk by heat (or under tension, e.g. stretch films, films tensioned by compressed articles (wrappers formed by folding a single blank B65D 71/12; wrappers formed by folding two or more blanks B65D 71/38))

Trays provided with projections or recesses in order to assemble multiple articles, e.g. intermediate elements for stacking
formed by folding one or more blanks, the articles being inserted in openings in a wall (trays with apertures located within an external paper container B65D 5/5038)

Packages comprising articles or materials partially or wholly enclosed in strips, sheets, blanks, tubes, or webs of flexible sheet material, e.g. in folded wrappers (B65D 71/00 takes precedence; wrapping B65B 11/00)

Articles or materials wholly enclosed in single sheets or wrapper blanks
in sheets or blanks doubled around contents and having their opposed free margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
the sheet or blank being recessed to accommodate contents (containers simulating a book B65D 77/006)

Articles or materials wholly enclosed in composite wrappers, i.e. wrappers formed by associating or interconnecting two or more sheets or blanks
Articles or materials enclosed between two opposed sheets or blanks having their margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
one or both sheets or blanks being recessed to accommodate contents
and having several recesses to accommodate a series of articles or quantities of material (not used)

WARNING
Group B65D 75/34 is no longer used for the classification of new documents. Documents of this group are in the process of being reclassified to groups B65D 75/323, B65D 75/327, and subgroups

one sheet or blank being recessed and the other formed of relatively stiff flat sheet material, e.g. blister packages, the recess or recesses being preformed (B65D 73/0057, B65D 73/0092 take precedence)

Articles or materials enclosed in two or more wrappers disposed one inside the other (for shock absorbing purposes B65D 81/03; for thermal insulating purposes B65D 81/3893)

Opening or contents-removing devices added or incorporated during package manufacture (B65D 75/36, B65D 85/1027 take precedence)

Packages formed by enclosing articles or materials in preformed containers, e.g. boxes, cartons, sacks, bags

Inserts or accessories added or incorporated during filling of containers (opening devices B65D 77/30)

Cards, coupons, or drinking straws (B65D 5/4212, B65D 23/14, B65D 25/205, B65D 33/004, B65D 51/245, B65D 75/54 take precedence)

Opening or contents-removing devices added or incorporated during filling or closing of containers (B65D 77/20 takes precedence)

Containers, packaging elements, or packages, for contents presenting particular transport or storage problems, or adapted to be used for non-packaging purposes after removal of contents

specially adapted to protect contents from mechanical damage (containers of polygonal cross-section provided with internal protecting elements for contents B65D 5/50; devices to locate articles in containers B65D 25/10)

Wrappers or envelopes with shock-absorbing properties, e.g. bubble films (for thermal insulating purposes B65D 81/3888)

maintaining contents at spaced relation from package walls, or from other contents (B65D 81/022, B65D 81/025, B65D 81/03 take precedence)

using resilient suspension means (B65D 81/051 takes precedence)

using flowable discrete elements of shock-absorbing material, e.g. pellets, popcorn (B65D 81/051 takes precedence)

using blocks of shock-absorbing material

of a shape specially adapted to accommodate contents (B65D 81/053 takes precedence)

using rigid or semi-rigid sheets of shock-absorbing material (B65D 81/025 takes precedence)

of a shape specially adapted to accommodate contents, e.g. trays (B65D 81/053 takes precedence; thermally insulated trays B65D 81/3816, B65D 81/3827)

providing specific environment for contents, e.g. temperature above or below ambient (with thermal insulation B65D 81/38; ice-boxes with cooling means F25D)
under vacuum or superatmospheric pressure, or in a special atmosphere, e.g. of inert gas (B65D 81/28 takes precedence; containers with pressurising means for maintaining ball pressure A63B 39/025).

Adaptations for preventing deterioration or decay of contents; Applications to the container or packaging material of food preservatives, fungicides, pesticides or animal repellants (with thermal insulation B65D 81/38)

with provision for draining away, or absorbing, or removing by ventilation,) fluids, e.g. exuded by contents; (B65D 33/01 takes precedence); Applications of corrosion inhibitors or desiccators

Containers or packages with special means for dispensing contents (dispensing means incorporated in removable or non-permanently secured container closures B65D 47/00; for shops, stores, offices, bars, or the like A47F 1/04; showcases or cabinets with dispensing arrangements A47F 3/02; for surgical articles A61B 19/026; magazines for screws or nuts in combination with spanners, wrenches or screw-drivers B25B 23/06; nail dispensers B25C 3/00; for use in connection with the handling of sheets, webs, or filamentary material B65H; coin deliverers G07D 1/00; coin-freed apparatus for dispensing discrete articles G07F 11/00)

WARNING

Groups B65D 83/75 to B65D 83/759 do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - B65D 83/75 to B65D 83/759 : B65D 83/14

for dispensing thin flat articles in succession (towel dispensers intended for re-use A47K 10/24)

NOTE

B65D 83/10 and B65D 83/12 take precedence over B65D 83/0805 to B65D 83/0894

for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers (for a product delivered by a propellant (spraying devices for the destruction of noxious animals or plants A01M 7/00, for therapeutic purposes A61M 11/00; spraying or atomizing apparatus in general B05B; aerosol compositions, e.g. propellants C09K 3/30; pumping of fluid by direct contact of another fluid, e.g. siphons F04F; fluid-delivery valves in general F16K 21/00; discharge nozzles in general F16K 31/58; vessels for containing or storing compressed, liquefied, or solidified gases F17C)

characterised by the actuating means (actuation occurring by moving the aerosol container relative to an outer shell B65D 83/386; involved in metering valve assemblies B65D 83/546)

(B operated by manual action, e.g. button-type actuator or actuator cap (actuators formed as a rigid elongate spout B65D 83/306)

Filling or charging means (Filling liquids into containers B65B 3/12; Adding propellants to aerosol containers B65B 31/003))

(with means for preventing delivery when the container is incorrectly oriented, e.g.) shut-off when inverted (for disabling actuation B65D 83/22)

Product and propellant separated (portable fire extinguishers wherein extinguishing material and pressure gas are stored in separate containers A62C 13/66)

by membrane, bag, or the like (containers in which the content is delivered by the contracting forces inherent in the bag B65D 83/061)

first separated, but finally mixed, e.g. in a dispensing head (mixing in general B01F)
Containers, packaging elements or packages specially adapted for particular articles or materials (B65D 71/00, B65D 83/00 take precedence; hand implements, travelling equipment A45C; cosmetic or toilet equipment A45D; for surgical instruments or appliances A61B 19/026; containers specially adapted for medical or pharmaceutical purposes A61J 1/00; paint cans B44D 3/12; oil cans F16N 3/04; containers for carrying smallarms F41C 33/06; packaging of ammunition or explosive charges F42B 39/00; containers for record carriers, specially adapted for co-operation with the recording or reproducing apparatus G11B 23/00)

NOTE
Attention is drawn to Note (4) following the title of this subclass

B65D 85/08
- for compressible or flexible rod-shaped or tubular articles (collapsible tubes per se B65D 35/00)

B65D 85/08
- for other web or tape-like material (with means for dispensing B65D 83/08)

B65D 85/08
- Disposable containers or packages with contents which are mixed, infused or dissolved in situ (without having been previously removed from the package (B65D 65/46 takes precedence; tea infusers A47G 19/16; spoons or stirrers comprising beverage additives A47G 21/04))

B65D 85/08
- for immersion in the liquid (to release part or all of their contents), e.g. tea bags

B65D 85/08
- with features facilitating their manipulation or suspension (B65D 85/8085 takes precedence)

B65D 90/00
Component parts, details or accessories for large containers (B65D 88/34 to B65D 88/78 take precedence)

B65D 90/02
- Wall construction

B65D 90/04
- Linings (for flexible containers B65D 88/1606)

B65D 2588/00
Large container (not used)

B65D 2588/16
- flexible (not used)

B65D 2588/16
- Flexible intermediate bulk containers (FIBC) (not used)

Project: N/A (B65F)

B65F 1/00
Refuse receptacles; Accessories therefor (containers not specially adapted for refuse, features of refuse receptacles of general interest B65D)

B65F 1/0033
- specially adapted for segregated refuse collecting, e.g. receptacles with several compartments; Combination of receptacles (B65F 1/0093 takes precedence)

B65F 1/0053
- Combination of several receptacles

B65F 1/0073
- Flexible receptacles fixed on a frame or in an enclosure (sack holders per se B65B 7/12)
Project: N/A (B65G)

**U B65G 1/00**  
Storing articles, individually or in orderly arrangement, in warehouses or magazines (conveyor combinations in warehouses, magazines, or workshops B65G 37/00; stacking of articles B65G 57/00; removing articles from stacks B65G 59/00; loading machines B65G 65/02; arrangements of articles for drying or baking in kilns or ovens F26; F27)

NOTE  
group B65G 1/0442 takes precedence over the other groups, except over B65G 1/08

**U B65G 1/02**  
- Storage devices (furniture, shop fittings, table equipment A47B, A47F, A47G; mechanical garages E04H; for data record cards in association with machines for making or sensing data G06K; coin changers or sorters G07D; coin-freed apparatus G07F{ pallets B65D 19/00})

**U B65G 1/04**  
- mechanical

**U B65G 1/06**  
- with means for presenting articles for removal at predetermined position or level (B65G 1/12 takes precedence)

**B65G 1/08**  
- the articles being fed by gravity {{braking arrangements for roller-ways B65G 13/075; separating or stopping elements B65G 47/88}}

**B65G 1/10**  
- with relatively movable racks to facilitate insertion or removal of articles {{cabinets with means for moving compartments up and down A47B 51/00; cabinet system, e.g. consisting of cabinets arranged in a row with means to open or close passages between adjacent cabinets A47B 53/02}}

**U B65G 7/00**  
Devices for moving or tilting heavy loads (for tilting and emptying barrels or casks B65G 65/24)

**U B65G 7/02**  
- Devices adapted to be interposed between loads and the ground or floor, e.g. crowbars with means for assisting conveyance of loads (crowbars per se B66F 15/00)

**B65G 7/06**  
- using fluid at high pressure supplied from an independent source to provide a cushion between load and ground {{conveying articles over a flat surface by jets located in the surface B65G 51/00}}

**U B65G 15/00**  
Conveyers having endless load-conveying surfaces, i.e. belts and like continuous members, to which tractive effort is transmitted by means other than endless driving elements of similar configuration (having load-conveying surfaces formed by interconnected longitudinal links B65G 17/06)

**U B65G 15/22**  
- comprising a series of co-operating units

**B65G 15/26**  
- extensible, e.g. telescopic {{adjustment of length or configuration of load-carrier B65G 21/14}}

**U B65G 17/00**  
Conveyers having an endless traction element, e.g. a chain, transmitting movement to a continuous or substantially continuous load-carrying surface or to a series of individual load-carriers; Endless-chain conveyers in which the chains form the load-carrying surface (railway systems, detachable load-carriers on rails B61B; escalators or paternosters neither combined nor associated with loading or unloading apparatus B66B 9/00)

**U B65G 17/26**  
- comprising a series of co-operating units, e.g. inter-connected by pivots

**B65G 17/28**  
- extensible, e.g. telescopic {{adjustment of length or configuration of traction element B65G 21/14}}

**U B65G 17/30**  
- Details; Auxiliary devices (belts B65G 15/30; framework B65G 21/00)
Controlling attitudes of load-carriers during movement \((B65G 17/18)\) takes precedence; \((guides B65G 21/20 ; inverting or tilting load carriers to discharge contents B65G 47/38)\)

Supporting or protective framework or housings for endless load-carriers or traction elements of belt or chain conveyors \((B65G 27/08)\); supporting framework or bases for conveyers as a whole \((B65G 41/00)\)

Means incorporated in, or attached to, framework or housings for guiding \((or retaining)\) load-carriers, traction elements or loads supported on moving surfaces \((arrangements for supporting belts B65G 15/60 ; \{ details of chain conveyers B65G 17/30 \} rollers or roller arrangements B65G 39/00 ; F16G)\)

\((Magnetic retaining means)\)

Driving gear for endless conveyers \((control devices for conveyers in general B65G 43/00)\); Belt or chain tensioning arrangements

Arrangements or mountings of driving motors \((B65G 23/08)\) takes precedence)

Jigging conveyers \((jigs for wet separation B03B ; generating or transmitting mechanical vibrations B06 ; jiggers for screening, sititng or sorting B07B 1/28)\)

\(\{supporting or mountings for load-carriers, \} e.g. framework, bases, spring arrangements \{spring arrangements as jigging movement transmitting units B65G 27/10\})\)

Applications of devices for generating or transmitting jigging movements

\(\{of vibrators, \} e.g. devices for producing movements of high frequency and small amplitude\)

\(\{Mechanical devices \} (B65G 27/26)\) takes precedence)

Control, e.g. safety, warning, fault-correcting, devices for elevators, escalators or moving walkways \(B66B; \) in general \(F16P, \) \(G08B)\)

\(\{detecting slip between driving element and load-carrier, \} e.g. for interrupting the drive \{(B65G 43/02)\) takes precedence)\)

\(\{Control devices operated by article or material being fed, conveyed or discharged \} \{and controlling the discharging devices B65G 47/42)\}

Article or material handling devices associated with conveyers; Methods employing such devices for (sorting, \(e.g. \) postal \(B07C)\)

\(\{Devices influencing the relative position or the attitude of articles during transit by conveyers \} (during feeding B65G 47/14)\)

\(\{Arranging the articles, \} e.g. varying spacing between individual articles \{stacking or destacking\} \{during transit B65G 57/32 \} \{B65G 59/12\})\)

\(\{during transit by a single conveyer \} \{(B65G 47/261)\) takes precedence)\)

\(\{by temporarily stopping movement \} \{stopping elements B65G 47/88)\)

\(\{during transit by a series of conveyers \} \{(B65G 47/261)\) takes precedence)\)

\(\{Applications of transfer devices \} \{such devices per se B65G 47/74)\)
U B65G 47/34 Devices for discharging articles or materials from conveyers (B65G 47/256 takes precedence; sorting in general B07)

B65G 47/42 operated by article or material being conveyed and discharged ((B65G 47/46 takes precedence))

U B65G 47/52 Devices for transferring articles or materials between conveyers (or sections of one conveyer), i.e. discharging and feeding devices (loading or unloading by means not incorporated in, or not operatively associated with, conveyers B65G 65/00; transfer of workpieces during metal rolling B21B 41/00)

U B65G 47/68 adapted to receive articles arriving in one layer from one conveyer (lane) and to transfer them in individual layers to more than one conveyer (lane or to one broader conveyer lane), or vice-versa, e.g. combining the flows of articles conveyed by more than one conveyer

B65G 47/69 the articles being accumulated temporarily ((accumulating articles during transit B65G 47/261))

U B65G 47/74 Feeding, transfer, or discharging devices of particular kinds or types

B65G 47/78 Troughs having discharge openings and closures ((in air-slides B65G 53/20))

B65G 47/82 Rotary or reciprocating members for direct action on articles or materials, e.g. pushers, rakes, shovels ((means for pushing glass articles onto a conveyor C03B 9/453))

B65G 47/84 Star-shaped wheels or devices having endless travelling belts or chains, the wheels or devices being equipped with article-engaging elements ((not used, see B65G 47/841, B65G 47/846))

U B65G 47/94 Devices for flexing or tilting travelling structures; Throw-off carriages

B65G 47/96 Devices for tilting links or platform ((releasing load-carriers B65G 47/38))

U B65G 49/00 Conveying systems characterised by their application for specified purposes not otherwise provided for (for conveying sheet material B65H)

U B65G 49/05 for fragile or damageable materials or articles

U B65G 49/06 for fragile sheets, e.g. glass (transporting of glass products during their manufacture C03B 35/00)

NOTE In group B65G 49/06 and subgroups it is desirable to add indexing codes for specific aspects of conveying systems. The indexing codes are chosen from groups B65G 2249/00 to B65G 2249/045

B65G 49/062 (Easels, stands or shelves, e.g. castor-shelves, supporting means on vehicles; (vehicles adapted to carry glass sheets B60P 3/002; storing articles B65G 1/00 or A47B 53/02; packaging for glass sheets B65D 85/48))

U B65G 53/00 Conveying materials in bulk through troughs, pipes, or tubes by floating the materials, or by flows of gas, liquid, or foam (fluidising in connection with loading or unloading B65G 69/06; loaders for hay or cereals A01D 87/00; discharging means for mixtures containing clay or cementitious material B28C 7/16; fluidising devices facilitating filling or emptying of large containers B65D 88/72; (combined washing or cutting and conveyance of materials in sugar manufacture A23N; C13C; dredging E02F; winning materials out of alluvial deposits E21C 45/00; hydraulic or pneumatic mine-filling-up machines E21F 15/00; fluid dynamics F15D(pumping fluid by direct action of another fluid F04F))

U B65G 53/34 Details

B65G 53/66 use of indicator or control devices, e.g. for controlling gas pressure, for controlling proportions of material and gas, for indicating or preventing jamming of material ((controlling the flow of coal firing systems C21B 5/003))
Transferring or trans-shipping at storage areas, railway yards, harbours, {or in opening mining cuts}; Marshalling yard installations (transferring refuse between vehicles or containers B65F 9/00 ; dredging, soil shifting E02F ; conveyers used in co-operation with coal or like winning apparatus E21C 47/00)

· with essentially horizontal transit by bridges equipped with conveyers {(cranes B66C)}

Loading or unloading (of vehicles B65G 67/00)

· Methods or devices for filling or emptying bunkers, hoppers, tanks, or like containers, of interest apart from their use in particular chemical or physical processes or their application in particular machines, e.g. not covered by a single other subclass (devices for tilting and emptying containers B65G 65/23 ; such containers having means facilitating filling or emptying B65D 88/54)

NOTE
Methods or devices for filling bunkers, hoppers, or containers are only classified in group B65G 65/30 if they are of general application apart from their use in particular processes or their application in particular machines or if they are not covered by a single other subclass

· Emptying devices (conveyor constructions B65G 15/00 to B65G 35/00 ; devices similar to vehicle tipplers B65G 67/48)

· Devices for emptying otherwise than from the top
· using other rotating means, e.g. rotating pressure sluices in pneumatic systems {(B65G 53/46 takes precedence)}

Loading or unloading vehicles (by means incorporated in the vehicles B60 to B64; ground or aircraft-carrier-deck installations B64F; transferring refuse between vehicles or containers B65F 9/00)

· Loading or unloading land vehicles
· Loading land vehicles {(loading or unloading boats to or from land vehicles B60P 3/10)}

Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H 39/00)

· with means for advancing the articles to present the articles to the separating device {(B65H 1/02 takes precedence)}

· comprising weights {(B65H 1/022 takes precedence)}

· comprising spring {(B65H 1/022 takes precedence)}

· comprising positively-acting mechanical devices {(B65H 1/025 takes precedence)}

· comprising pneumatic or hydraulic means {(B65H 1/18 , B65H 1/20 take precedence)}

· with means for replenishing the pile during continuous separation of articles therefrom {(B65H 1/22 takes precedence)}

Separating articles from piles (associating, collating, or gathering articles B65H 39/00 ; machines for separating superposed webs B65H 41/00 ; unpiling thin material combined with folding B65H 45/26 ; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling B65H 83/00 , (B07C 1/02 , G07D 11/0084))

· using friction forces between articles and separator
B65H 3/06 · · Rollers or like rotary separators ((B65H 3/42 takes precedence))
B65H 3/08 · using pneumatic force ((B65H 3/40, B65H 3/42 take precedence))
U B65H 3/46 · Supplementary devices or measures to assist separation or prevent double feed (control means comprising detectors responsive to double feed B65H 7/12)
B65H 3/56 · · Elements, e.g. scrapers, fingers, needles, brushes, acting on separated article or on edge of the pile ((B65H 3/52 takes precedence))
U B65H 5/00 Feeding articles separated from piles; Feeding articles to machines ((B65H 9/00 takes precedence; ) identical mechanisms or parts for delivering or advancing articles from machines B65H 29/00; recirculating articles B65H 85/00, (G03B 27/6257))
B65H 5/02 · by belts or chains, (e.g. between belts or chains (by combinations of endless conveyers and grippers B65H 5/085; by suction belts B65H 5/224))
B65H 5/06 · by rollers (or balls e.g. between rollers (transport by suction rollers B65H 5/226))
B65H 16/00 Unwinding, paying-out webs ((reel-to-reel type web winding and unwinding mechanisms B65H 18/103, B65H 18/145))
U B65H 18/00 Winding webs
U B65H 18/08 · Web-winding mechanisms
U B65H 18/14 · · Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
U B65H 18/16 · · · by friction roller
B65H 18/18 · · · · to effect step-by-step advancement of web ((not used))
U B65H 18/22 · · · · by friction band
B65H 18/24 · · · · to effect step-by-step advancement of web ((not used))
U B65H 19/00 Changing the web roll
U B65H 19/10 · in unwinding mechanisms or in connection with unwinding operations
B65H 19/18 · · Attaching, e.g. pasting, the replacement web to the expiring web ((adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing B65H 19/102))
WARNING
Groups B65H 19/1805 to B65H 19/1842 are not complete pending reclassification. See also this group
U B65H 29/00 Delivering or advancing articles from machines; Advancing articles to or into piles
B65H 29/16 · by contact of one face only with moving tapes, bands, or chains ((with suction belts B65H 29/242))
B65H 29/20 · by contact with rotating friction members, e.g. rollers, brushes, or cylinders ((with suction rollers B65H 29/243))
U B65H 29/54 · Article strippers, e.g. for stripping from advancing elements
B65H 29/56 · · for stripping from elements or machines ((for electrographic machines G03G))
U B65H 29/66 · Advancing articles in overlapping streams
B65H 29/6672 · · (dividing an overlapping stream into two or more streams; (articles switches or diverters B65H 29/58))
U B65H 33/00 Forming counted batches in delivery pile or stream of articles
Associating, collating or gathering articles or webs (machines for both collating or gathering and permanently attaching together sheets or signatures B42C 1/00)

Associating articles from a single source, to form e.g. a writing-pad (laminating B32B 37/00, B32B 38/00)

Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. D06F 89/00)

Folding articles or webs with application of pressure to define or form crease lines (B65H 20/28 takes precedence; pleating, kilting or goffering textile fabrics D06J)

Zig-zag folders (B65H 45/22 takes precedence)

Methods or apparatus in which packages rotate (flyers or other guides assisting paying-out B65H 57/00; supports or holders, for storing and repeatedly paying-out and rewinding lengths of material provided for particular purposes B65H 75/34)

Package-supporting devices

Package-supporting devices

Turning devices; Package-shaping arrangements (arrangements for preventing ribbon winding B65H 54/38; grooved, slotted, or split drums for driving of packages B65H 54/46)

with thread guides reciprocating or oscillating with fixed stroke (B65H 54/2803 to B65H 54/2896 take precedence)

Winding of balls; (Forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels B29C 53/56)

Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations

Arrangements for removing completed take-up packages and [or] replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements (arrangement of the service carriage B65H 54/26)
B65H 67/06 · Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations (between spinning and winding machines D01H 9/18, e.g. transporting cans D01H 9/185)

U B65H 69/00 Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices; Control of the correct working of the interconnecting device

B65H 69/06 · by splicing (Grommets made by splicing D07B 1/18, auxiliary apparatus for splicing ropes or cables D07B 7/16)

U B65H 75/00 Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels A01K 89/00; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus G11B 23/02)

U B65H 75/02 · Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans (packaging aspects B65D 85/67)

U B65H 75/18 · · Constructional details
B65H 75/20 · · · Skeleton construction, e.g. formed of wire (perforated supports for textile materials to be treated D06B 23/042)

U B65H 75/34 · · specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material provided for particular purposes, e.g. anchored hoses, power cables (retractors for storing flexible hoses as accessories of dental work stands A61G 15/18; vehicle safety belt retractors B60R 22/34; hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers B67D 7/40; clothes-line supports D06F 53/00; spring drums for liftable blinds with horizontal lamellae E06B 9/322; spring drums or tape drums for roll-type closures or roller blinds E06B 9/56; hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like F16G 13/16; devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, F16L 3/01; flexible rulers or tapes with scales G01B 3/10; electrical features of stored material, see the relevant subclasses, e.g. H02G)

U B65H 75/38 · · · involving the use of a core or former internal to, and supporting, a stored package of material

U B65H 75/44 · · · · Constructional details
B65H 75/48 · · · · · Automatic restoring devices (B65H 75/4418 takes precedence)

Project: N/A (B66B)

U B66B 1/00 Control systems of elevators in general (safety devices B66B 5/00; controlling door or gate operation B66B 13/00; systems of general application G05)

U B66B 1/02 · Control systems without regulation, i.e. without retroactive action
U B66B 1/06 · · electric
U B66B 1/14 · · · with devices, e.g. push-buttons, for indirect control of movements
B66B 1/16 · · · · with means for storing pulses controlling the movements of a single car or cage (B66B 1/2433 takes precedence)
B66B 1/18 · · · · with means for storing pulses controlling the movements of several cars or cages (B66B 1/2458 takes precedence)
B66B 1/20 · · · · · and for varying the manner of operation to suit particular traffic conditions, e.g. "one-way rush-hour traffic", (B66B 1/2466 takes precedence)
U B66B 1/24 · Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration
Kinds or types of lifts in, or associated with, buildings or other structures (characterised by control systems B66B 1/00; apparatus for raising or lowering persons on stages of theatres A63J 5/12)

- inclined, e.g. serving blast furnaces
- associated with stairways, e.g. for transporting disabled persons (facilitating access of invalids to vehicles A61G 3/02)

Rope, cable, or chain winding mechanisms; Capstans (portable or mobile lifting or hauling appliances B66D 3/00)

- Driving gear
- Power transmissions between power sources and drums or barrels (including brakes, one-way brakes, one-way clutches, clutches activated alternately with brakes, fixed ratio gearing unless otherwise provided for in B66D 1/16 to B66D 1/24)

- the drums or barrels being freely rotatable (e.g. having a clutch activated independently of a brake (B66D 1/20, B66D 1/22, B66D 1/24 take precedence; clutches activated alternately with brakes B66D 1/14, slip couplings B66D 1/14))

- for varying speed or reversing direction of rotation of drums or barrels (i.e. variable ratio or reversing gearing (B66D 1/225 takes precedence))

Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type B66F 5/00)

- Lazy-tongs mechanisms (B66F 11/042 takes precedence)

Apparatus or devices for dispensing beverages on draught (B67D 3/00 takes precedence; apparatus for making beverages A47J 31/00)

- Details
- {concerning the used flowmeter (flowmeter per se G01F 1/00, G01F 3/00)}

MICRO-STRUCTURAL DEVICES OR SYSTEMS, e.g. MICRO-MECHANICAL DEVICES (piezo-electric, electrostrictive or magnetostrictive elements per se H01L 41/00)

NOTES
1. This subclass does not cover:
   - purely electrical or electronic devices per se which are covered by section H, e.g. subclass H01L;
   - purely optical devices per se which are covered by subclasses G02B or G02F;
   - essentially two-dimensional structures, e.g. layered products which are covered by subclass B32B;
   - chemical or biological structures per se which are covered by section C;
structures in atomic scale produced by manipulation of single atoms or molecules, which are covered by group B82B 1/00.

2. Devices or systems classified in this subclass are also classified in appropriate subclasses providing for their structural or functional features, if such features are of interest.

3. Attention is drawn to the following places:
   A61K 9/50  Microcapsules for medicinal preparations  B25J 7/00
   G02B 21/32  Micromanipulators combined with microscopes  G11B 5/127  Magnetic heads  H01P 3/08  Waveguide microstrips.

4. In this subclass, local "residual" subgroups, e.g. B81B 7/0077, are used with the following purpose:
   When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

In the example, the document shall be classified in B81B 7/0077 and not in B81B 7/0032 as B81B 7/0077 is "residual" to B81B 7/0035-B81B 7/0074

Project: N/A (C01B)

U C01B 3/00  Hydrogen; Gaseous mixtures containing hydrogen; Separation of hydrogen from mixtures containing it (separation of gases by physical means B01D); Purification of hydrogen (production of water gas or synthesis gas from solid carbonaceous material C10J; purifying or modifying the chemical compositions of combustible technical gases containing carbon monoxide C10K)

NOTES
1. In this group it is desirable to add the indexing codes of groups B01J 2208/00 and B01J 2219/00, for details relating to the reactors used in the generation of hydrogen or synthesis gas.

2. In groups C01B 3/12 to C01B 3/18 and in groups C01B 3/22 to C01B 3/586 it is desirable to add the indexing codes of group C01B 2203/00, for aspects relating to hydrogen or synthesis gas generation processes.

U C01B 3/02  · Production of hydrogen or of gaseous mixtures containing {a substantial proportion of}hydrogen
   C01B 3/04  · · by decomposition of inorganic compounds, e.g. ammonia {C01B 3/0005 takes precedence})

U C01B 3/50  · Separation of hydrogen or hydrogen containing gases from gaseous mixtures, e.g. purification (C01B 3/14 takes precedence)
   C01B 3/52  · · by contacting with liquids; Regeneration of used liquids {C01B 3/508 takes precedence})
   C01B 3/56  · · by contacting with solids; Regeneration of used solids {C01B 3/508 takes precedence})

U C01B 13/00  Oxygen; Ozone; Oxides or hydroxides in general

U C01B 13/02  · Preparation of oxygen (by liquefying F25J)
   C01B 13/08  · · from air with the aid of metal oxides, e.g. barium oxide, manganese oxide {C01B 13/0292 takes precedence})

U C01B 13/14  · Methods for preparing oxides or hydroxides in general (particular individual oxides or hydroxides, see the relevant groups of subclasses C01B to C01G or C25B, according to the element combined with the oxygen or hydroxy group)
by precipitation reactions in (aqueous)solutions \(\text{(C01B 13/328 takes precedence)}\)

**U C01B 21/00** Nitrogen; Compounds thereof

- Nitrogen oxides; Oxyacids of nitrogen; Salts thereof
  - Nitric anhydride (\(\text{N}_2\text{O}_5\)) \(\text{(C01B 21/203 takes precedence)}\)
  - Nitrous oxide (\(\text{N}_2\text{O}\)) \(\text{(C01B 21/203 takes precedence)}\)
  - Nitric oxide (\(\text{NO}\)) \(\text{(C01B 21/203 takes precedence)}\)
- Preparation by oxidation of nitrogen \(\text{(C01B 21/26 takes precedence)}\)
- Nitrogen trioxide (\(\text{N}_2\text{O}_3\)) \(\text{(C01B 21/203 takes precedence)}\)
- Preparation by absorption of oxides of nitrogen \(\text{(C01B 21/26 takes precedence)}\)
- Concentration \(\text{(C01B 21/40 takes precedence)}\)

**U C01B 25/00** Phosphorus; Compounds thereof \(\text{(C01B 6/00)}\), \(\text{C01B 21/00}\), \(\text{C01B 23/00}\) take precedence; perphosphates \(\text{C01B 15/16}\)

- Oxyacids of phosphorus; Salts thereof (peroxyacids or salts thereof \(\text{C01B 15/00}\))
- Phosphoric acid
- Phosphates (perphosphates \(\text{C01B 15/16}\))
  - containing halogen \(\text{(completely halogenated alkali metal phosphates \(\text{C01D}\), e.g. lithium hexafluorophosphate \(\text{C01D 15/005}\))}\)

**U C01B 31/00** Carbon; Compounds thereof \(\text{(C01B 6/00)}\), \(\text{C01B 21/00}\), \(\text{C01B 23/00}\) take precedence; percarbonates \(\text{C01B 15/10}\); carbon black \(\text{C09C 1/48}\); gas carbon production \(\text{C10B}\)

- Active carbon
- Preparation by using gaseous activating agents \(\text{(C01B 31/086, C01B 31/088 takes precedence)}\)
- Preparation by using non-gaseous activating agents \(\text{(C01B 31/086, C01B 31/088 takes precedence)}\)

**U C01B 33/00** Silicon; Compounds thereof \(\text{(C01B 6/00)}\), \(\text{C01B 21/00}\), \(\text{C01B 23/00}\) take precedence; persilicates \(\text{C01B 15/14}\); carbides \(\text{C01B 31/36}\)

- Silicon oxides; Hydrates thereof \(\text{(preparing monoxide by reduction of siliceous material \(\text{C01B 33/182}\))}\)
- Silica; Hydrates thereof, e.g. lepidoic silicic acid
- Colloidal silica, e.g. dispersions, gels, sols
- After-treatment of sols \(\text{(preparation of hydrosols or aqueous dispersions from hydroorganosols, organosols or dispersions in an organic medium \(\text{C01B 33/141}\); preparation of hydroorganosols, organosols or dispersions in an organic medium from hydrosols(or aqueous dispersions)\(\text{C01B 33/145}\))}\)
- Concentration; Drying; Dehydration; Stabilisation; Purification \(\text{(C01B 33/1465 takes precedence)}\)

**U C01B 33/20** Silicates (persilicates \(\text{C01B 15/14}\); { containing aluminium \(\text{C01B 33/26}\))
having base-exchange properties but not having molecular sieve properties
(regeneration thereof \textit{B01J 49/00})

Layered base-exchange silicates, e.g. clays, micas or alkali metal silicates of
kenyaite or magadiite type \{(activation of naturally occurring clays \textit{B01J 20/12}; pillared layered base-exchange silicates \textit{B01J 29/049})\}

Amorphous silicates, e.g. so-called "amorphous zeolites" (crystalline zeolites \textit{C01B 39/00})

Boron; Compounds thereof (monoborane, diborane, metal borohydrides or addition complexes thereof \textit{C01B 6/00}; perborates \textit{C01B 15/12}; binary compounds with nitrogen \textit{C01B 21/06}; \{compounds of noble gases \textit{C01B 23/0005}; phosphides \textit{C01B 25/06}; carbides \textit{C01B 31/36}; alloys containing boron \textit{C22}\})

Compounds containing boron and nitrogen, phosphorus, oxygen, sulfur, selenium or tellurium

Compounds containing boron and oxygen (\textit{C01B 35/06} takes precedence)

Borates (\{(\textit{C01B 35/1063} takes precedence)\})

Compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites; Their preparation; After-treatment, e.g. ion-exchange or dealumination (treatment to modify the sorption properties, e.g. shaping using a binder, \textit{B01J 20/10}; treatment to modify the catalytic properties, e.g. combination of treatments to make the zeolites appropriate to their use as a catalyst, \textit{B01J 29/04}; treatment to improve the ion-exchange properties \textit{B01J 39/14}; regeneration or reactivation of ion-exchange properties \textit{B01J 49/00}; preparation of stabilised suspensions used in detergents \textit{C11D 3/12})

**NOTES**

1. In this group, the following term is used with the meaning indicated:
   * "zeolites" means:
     i. crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
     ii. compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.

2. Compounds classified in main group \textit{C01B 39/00} are also classified in other groups of class \textit{C01} according to their composition
C01B 39/26  ·  Mordenite type {{C01B 39/023, C01B 39/026, C01B 39/06 take precedence}}
C01B 39/28  ·  Phillipsite or harmotome type {{C01B 39/023, C01B 39/026, C01B 39/06 take precedence}}
C01B 39/46  ·  Other types characterised by their X-ray diffraction pattern and their defined composition {{C01B 39/023, C01B 39/026, C01B 39/06 take precedence}}
C01B 39/50  ·  Zeolites wherein inorganic bases or salts occlude channels in the lattice framework, e.g. sodalite, cancrinite, nosean, hauynite {{ultramarine C09C 1/32}}

Project: N/A (C01F)

U  C01F 7/00  Compounds of aluminium
   U  C01F 7/02  ·  Aluminium oxide; Aluminium hydroxide; Aluminates
   U  C01F 7/04  ·  Preparation of alkali metal aluminates; Aluminium oxide or hydroxide therefrom {{C01F 7/028 takes precedence}}
   C01F 7/06  ·  ·  by treating aluminous minerals (or waste-like raw materials) with alkali hydroxide, {e.g. leaching of bauxite according to the Bayer process (obtaining aluminium oxide or hydroxide from the resulting aluminate solution C01F 7/14)}
   C01F 7/0666  ·  ·  ·  {Process control or regulation (control per see G05)}
   C01F 7/08  ·  ·  by treating aluminous minerals with sodium carbonate, {e.g. sinter processes (C01F 7/0613 and C01F 7/0666 take precedence)}

U  C01F 17/00  Compounds of the rare earth metals, i.e. scandium, yttrium, lanthanum, or the group of the lanthanides
   NOTE
   In this group "rare earth metals" means one single element or a combination of elements taken from the group as specified above
   C01F 17/0043  ·  {Oxides or hydroxides (ternary oxides or hydroxides, e.g. NaCeO₂ C01F 17/0018}}

Project: N/A (C02F)

U  C02F 1/00  Treatment of water, waste water, or sewage {{C02F 3/00 to C02F 9/00 take precedence}}
   C02F 1/44  ·  by dialysis, osmosis or reverse osmosis {{general membrane separation processes B01D 61/00, membrane modules B01D 63/00, electrodialysis C02F 1/4693, combination of membrane modules and bioreactors C02F 3/1268}}
   C02F 1/52  ·  by flocculation or precipitation of suspended impurities {{C02F 1/463 takes precedence}}
   U  C02F 1/58  ·  by removing specified dissolved compounds (using ion-exchange C02F 1/42; softening water C02F 5/00)
   C02F 1/60  ·  ·  Silicon compounds {{C02F 1/583 takes precedence}}
   C02F 1/70  ·  by reduction {{C02F 1/4676 takes precedence}}
   C02F 1/72  ·  by oxidation {{C02F 1/4672 takes precedence}}
   C02F 1/76  ·  ·  with halogens or compounds of halogens {{C02F 1/4674 takes precedence}}
   C02F 1/78  ·  ·  with ozone {{C02F 1/4672 takes precedence}}
   C02F 3/00  Biological treatment of water, waste water, or sewage {{C02F 1/006 takes precedence}}
### Project: N/A (C03B)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U C03B 5/00</strong></td>
<td>Melting in furnaces; Furnaces so far as specially adapted for glass manufacture</td>
</tr>
<tr>
<td>C03B 5/04</td>
<td>in tank furnaces {((C03B 5/02 takes precedence))}</td>
</tr>
<tr>
<td>C03B 5/06</td>
<td>in pot furnaces {((C03B 5/02 takes precedence))}</td>
</tr>
<tr>
<td>C03B 5/10</td>
<td>in combined tank furnaces and pots {((C03B 5/02 takes precedence))}</td>
</tr>
<tr>
<td>C03B 5/12</td>
<td>in shaft furnaces {((C03B 5/02 takes precedence))}</td>
</tr>
<tr>
<td>C03B 5/14</td>
<td>in revolving cylindrical furnaces {((C03B 5/02 takes precedence))}</td>
</tr>
<tr>
<td><strong>U C03B 5/16</strong></td>
<td>Special features of the melting process; Auxiliary means specially adapted for glass-melting furnaces</td>
</tr>
<tr>
<td>C03B 5/18</td>
<td>· Stirring devices; Homogenisation {((mixing in general B01F))}</td>
</tr>
<tr>
<td><strong>U C03B 7/00</strong></td>
<td>Distributors for the molten glass; Means for taking-off charges of molten glass; Producing the gob, e.g. controlling the gob shape, weight or delivery tact</td>
</tr>
<tr>
<td>C03B 7/01</td>
<td>Means for taking-off charges of molten glass {((C03B 7/08, C03B 7/14 to C03B 7/22 take precedence))}</td>
</tr>
<tr>
<td><strong>U C03B 19/00</strong></td>
<td>Other methods of shaping glass (manufacture or treatment of flakes, fibres or filaments from softened glass, minerals or slags C03B 37/00)</td>
</tr>
<tr>
<td>C03B 19/04</td>
<td>· by centrifuging {((C03B 19/095 takes precedence))}</td>
</tr>
<tr>
<td><strong>U C03B 23/00</strong></td>
<td>Re-forming shaped glass (re-forming fibres or filaments C03B 37/14)</td>
</tr>
<tr>
<td>C03B 23/04</td>
<td>· Re-forming tubes or rods</td>
</tr>
<tr>
<td>C03B 23/051</td>
<td>· by gravity, e.g. sagging {((C03B 23/093 takes precedence))}</td>
</tr>
<tr>
<td>C03B 23/055</td>
<td>· by rolling {((C03B 23/095 takes precedence))}</td>
</tr>
<tr>
<td>C03B 23/06</td>
<td>· by bending {((C03B 23/096 takes precedence))}</td>
</tr>
<tr>
<td>C03B 23/07</td>
<td>· by blowing, e.g. for making electric bulbs {((C03B 23/097 takes precedence))}</td>
</tr>
<tr>
<td><strong>U C03B 32/00</strong></td>
<td>Thermal after-treatment of glass products not provided for in groups C03B 19/00, C03B 25/00 to C03B 31/00 or C03B 37/00, e.g. crystallisation, eliminating gas inclusions or other impurities; (Hot-pressing vitrified, non-porous, shaped glass products)</td>
</tr>
<tr>
<td>C03B 32/02</td>
<td>· Thermal crystallisation, e.g. for crystallising glass bodies into glass-ceramic articles {((C03B 27/012 takes precedence))}</td>
</tr>
<tr>
<td><strong>U C03B 33/00</strong></td>
<td>Severing cooled glass (severing glass fibres C03B 37/16)</td>
</tr>
<tr>
<td>C03B 33/10</td>
<td>· Glass-cutting tools, e.g. scoring tools</td>
</tr>
<tr>
<td><strong>U C03B 33/12</strong></td>
<td>· · Hand tools (wheel design C03B 33/107)</td>
</tr>
<tr>
<td>C03B 33/14</td>
<td>· · · specially adapted for cutting tubes, rods, or hollow products {((for cutting ampoules B67B 7/92))}</td>
</tr>
<tr>
<td><strong>U C03B 37/00</strong></td>
<td>Manufacture or treatment of flakes, fibres, or filaments from softened glass, minerals, or slags</td>
</tr>
<tr>
<td>C03B 37/01</td>
<td>· Manufacture of glass fibres or filaments</td>
</tr>
<tr>
<td><strong>U C03B 37/02</strong></td>
<td>· · Manufacture of preforms for drawing fibres or filaments</td>
</tr>
<tr>
<td>C03B 37/014</td>
<td>· · · made entirely or partially by chemical means, e.g. vapour phase deposition of bulk porous glass either by outside vapour deposition (OVD), or by outside vapour phase oxidation (OVPO) or by vapour axial deposition (VAD) {((C03C 17/02 takes precedence))}</td>
</tr>
</tbody>
</table>
by drawing or extruding, e.g. direct drawing of molten glass from nozzles; Cooling fins therefor (C03B 37/04 takes precedence; sizing of the fibres C03C 25/00))

... from reheated softened tubes, rods, fibres or filaments, e.g. drawing fibres from preforms (draw-down of tubes, rods or preforms to reduced diameter preforms C03B 37/0124))

... Drawing fibre bundles, e.g. for making fibre bundles of multifibres, image fibres; (Drawing multicore or photonic crystal fibres C03B 37/027)

LIME, MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE BUILDING MATERIALS; ARTIFICIAL STONE (roofing granules E04D 7/005); CERAMICS (devitrified glass-ceramics C03C 10/00); REFRACTORIES; TREATMENT OF NATURAL STONE

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • “fillers” includes pigments, aggregates and fibrous reinforcing materials;
   • “active ingredients” includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;
   • “mortars”, “concrete” and “artificial stone” are to be considered as a single group of materials, and therefore, in the absence of an indication to the contrary, they include mortar, concrete and other cementitious compositions.

2. In groups C04B 7/00 to C04B 32/00, in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. A composition classified in groups C04B 26/00 or C04B 28/00 is also classified in groups C04B 14/00 to C04B 24/00 if a filler or active ingredient is of interest.

4. In groups C04B 2/00 to C04B 32/00 and C04B 38/00 to C04B 41/00 it is desirable to classify the individual constituents of the mixtures, or other aspects relating to the mixtures or constituents, using Combination Sets with symbols chosen from groups C04B 2/00 to C04B 41/00.

5. In groups C04B 2/00 to C04B 32/00 and C04B 38/00 to C04B 41/00 it is desirable to classify the function of the individual constituents of the mixtures, or other aspects relating to the properties or uses of the mixtures or products obtained, using Combination Sets with symbols chosen from groups C04B 2103/00 to C04B 2111/00.

6. Groups C04B 20/123 and C04B 20/126 are used for indexing purposes only of documents classified in C04B 20/12

WARNING
The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Covered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>C04B 5/02</td>
<td>B01J 2/00</td>
</tr>
<tr>
<td>C21B 3/06</td>
<td></td>
</tr>
<tr>
<td>C04B 33/132 to C04B 33/138</td>
<td>C04B 35/26</td>
</tr>
<tr>
<td>C04B 33/13</td>
<td></td>
</tr>
<tr>
<td>C04B 35/035</td>
<td>C04B 35/26</td>
</tr>
<tr>
<td>+s.gr. C04B 35/567</td>
<td>C04B 35/569</td>
</tr>
<tr>
<td>C04B 35/567</td>
<td>C04B 35/576</td>
</tr>
<tr>
<td>, C04B 35/577</td>
<td>C04B 35/565</td>
</tr>
</tbody>
</table>
Lime, magnesia or dolomite (hydraulic lime cements C04B 7/34)

Lime (obtaining Ca(OH)$_2$ otherwise than by simple slaking of quick lime C01F 11/02)

Slaking (simultaneous dehydrating of gypsum and slaking of lime C04B 11/022)

Hydraulic cements (calcium sulfate cements C04B 11/00)

Cements containing slag (slags from waste incineration C04B 7/28)

Metallurgical slag

Mixtures thereof with other inorganic cementitious materials or other activators

Cements from oil shales, residues or waste other than slag

Cements from raw materials containing flue dust, i.e. fly ash (C04B 7/243 takes precedence)

Manufacture of hydraulic cements in general

Preparing or treating the raw materials individually or as batches, e.g. mixing with fuel; (C04B 7/362 takes precedence)

Heat treatment, e.g. precalcining, burning, melting; Cooling (aspects only relating to the installation F27B)

Methods for eliminating alkali metals or compounds thereof, e.g. from the raw materials or during the burning process; methods for eliminating other harmful components (avoiding environmental pollution C04B 7/364)

Calcium sulfate cements

Methods and apparatus for dehydrating gypsum (for other purposes than cement manufacture C01F 11/466)

Devices therefor characterised by the type of calcining devices used therefor or by the type of hemihydrate obtained

for the wet process, e.g. dehydrating in solution or under saturated vapour conditions, i.e. to obtain alpha-hemihydrate (C04B 11/0281 to C04B 11/0288 take precedence)

for the dry process, e.g. dehydrating in a fluidised bed or in a rotary kiln, i.e. to obtain beta-hemihydrate (C04B 11/0281 to C04B 11/0288 take precedence)
U C04B 14/00 Use of inorganic materials as fillers, e.g., pigments, for mortars, concrete or artificial stone; Treatment of inorganic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone (expanding or defibrillating materials C04B 20/00)

NOTE
Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in E04C 5/00. However, if they are only characterised by their composition, classification is made in C04B only.

U C04B 14/02 · Granular materials, (e.g. micro-balloons)
U C04B 14/04 · · Silica-rich materials; Silicates
C04B 14/10 · · · Clay (sepiolite C04B 14/042 ; grog C04B 18/025)
C04B 14/14 · · · Minerals of volcanic origin (granite C04B 14/048)
C04B 14/20 · · · Mica; Vermiculite (Mechanical splitting B28D)
C04B 14/30 · · Oxides other than silica (ferrites C04B 14/363)
U C04B 14/38 · Fibrous materials; Whiskers
U C04B 14/42 · · Glass
C04B 14/44 · · · Treatment for enhancing alkali resistance (composition of alkali resistant glass fibres C03C 13/00 ; coating of glass fibres C03C 25/10)
C04B 14/46 · · Rock wool; (Ceramic or silicate fibres (C04B 14/40 , C04B 14/42 take precedence))

U C04B 16/00 Use of organic materials as fillers, e.g., pigments, for mortars, concrete or artificial stone; Treatment of organic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone

NOTE
Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in E04C 5/00. However, if they are only characterised by their composition, classification is made in C04B only.

U C04B 16/04 · Macromolecular compounds (C04B 16/02 takes precedence)
C04B 16/10 · · Treatment for enhancing the mixability with the mortar (coating C04B 20/10)

U C04B 18/00 Use of agglomerated or waste materials or refuse as fillers for mortars, concrete or artificial stone (use of waste materials for the manufacture of cement C04B 7/24); Treatment of agglomerated or waste materials or refuse, specially adapted to enhance their filling properties in mortars, concrete or artificial stone

NOTE
Fillers with a well defined shape other than granular are considered to be reinforcing elements and thus are classified in E04C 5/00. However, if they are only characterised by their composition, classification is made in C04B only.

C04B 18/04 · Waste materials; Refuse (C04B 14/405 takes precedence)
C04B 18/16 · · from building or ceramic industry (separating plants for waste concrete slurry B03B 9/063)
U C04B 18/18 · · organic (C04B 18/10 takes precedence)
C04B 18/20 · · · from macromolecular compounds (recycled expanded polystyrene C04B 16/08)
C04B 18/30 · · Mixed waste; Waste of undefined composition, (C04B 18/10 takes precedence)
Use of materials as fillers for mortars, concrete or artificial stone according to more than one of groups C04B 14/00 to C04B 18/00 and characterised by shape or grain distribution; Treatment of materials according to more than one of the groups C04B 14/00 to C04B 18/00 specially adapted to enhance their filling properties in mortars, concrete or artificial stone; Expanding or defibrillating materials

NOTE
Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in E04C 5/00. However, if they are only characterised by their composition, classification is made in C04B only

· Treatment
  · Defibrillating asbestos [(defibrillating other fibres C04B 20/026)]
  · Coating or impregnating [(roofing granules E04D 7/005)]

Use of organic materials as active ingredients for mortars, concrete or artificial stone, e.g. plasticisers

NOTE
Groups C04B 24/003 to C04B 24/006 take precedence over groups C04B 24/008 to C04B 24/226

· Nitrogen containing compounds (organic derivatives of hydrazine (hydrazine C04B 22/00))

· Macromolecular compounds (C04B 24/14 takes precedence; macromolecular compounds comprising sulfonate or sulfate groups C04B 24/16)
  · obtained by reactions only involving carbon-to-carbon unsaturated bonds ([(C04B 24/243 takes precedence)])
  · obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds ([(C04B 24/243 takes precedence)])
  · Natural resins, e.g. rosin ([(C04B 24/243 takes precedence)])
  · Bituminous materials, e.g. tar, pitch ([(C04B 24/243 takes precedence)])
  · Polysaccharides or derivatives thereof ([(C04B 24/243 takes precedence)])

Compositions of mortars, concrete or artificial stone, containing only organic binders, e.g. polymer or resin concrete (mechanical aspects moulding polymer or resin concrete B29C 67/242)

Compositions of mortars, concrete or artificial stone, containing inorganic binders or the reaction product of an inorganic and an organic binder, e.g. polycarboxylate cements

NOTE
While using Combination Sets in this main group, the presence of an organic binder is indicated with symbols chosen from group C04B 24/00, and the presence of a supplementary inorganic binder with symbols chosen from groups C04B 7/00 to C04B 12/00

· containing calcium sulfate cements ([(gypsum-paper plates E04C)])
· containing alkyl, ammonium or metal silicates; containing silica sols ([(reaction mixtures resulting in mineral polymers C04B 28/006; polymeric reaction products of alkali metal silicates with isocyanates C08G 18/3895)])

Artificial stone not provided for in other groups of this subclass
C04B 32/02 · with reinforcements {contains no documents; reinforcing elements E04C 5/00)

NOTE
This group is only used for indexing purposes

U C04B 33/00 Clay-ware (monolithic refractories or refractory mortars C04B 35/66; porous products C04B 38/00)

NOTE
In groups C04B 33/00 to C04B 33/36, from 01-10-2008 onwards, the indexing codes of groups C04B 2235/00 to C04B 2235/9646 are used (with the exception of C04B 2235/34H, C04B 2235/602N, C04B 2235/604 and C04B 2235/9661) to identify aspects relating to ceramic starting mixtures and sintered ceramic products

U C04B 33/02 · Preparing or treating the raw materials individually or as batches
U C04B 33/13 · · Compounding ingredients (C04B 33/36, C04B 35/71 take precedence;
{ pigments for ceramics C09C 1/0009))
U C04B 33/132 · · · Waste materials; Refuse; {Residues}(C04B 33/16 takes precedence; { waste glass C04B 33/13)
C04B 33/135 · · · · Combustion residues, e.g fly ash, incineration waste {(silica fume C04B 33/132)}

U C04B 35/00 Shaped ceramic products characterised by their composition {porous ceramic products C04B 38/00; ceramic articles characterised by particular shape, see the relevant classes, e.g. linings for casting ladles, tundishes, cups or the like B22D 41/02; ceramic substrates for microelectronic semiconductors H01L 23/15); Ceramics compositions (containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides other than as macroscopic reinforcing agents C22C; {shaping of ceramics B28B}); Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products {Chemical preparation of powders of inorganic compounds C01; infiltration of sintered ceramic preforms with molten metal C04B 41/51})

NOTES
1. In this group, in the absence of an indication to the contrary, compositions are classified according to the constituent present in the highest proportion by weight.
2. In this group, magnesium is considered as an alkaline earth metal.
3. In this group, a composite is considered as a sintered material containing more than one phase, where the secondary phases are not resulting from sintering aids
4. In this group, fine ceramics are considered as products having a polycrystalline, fine-grained microstructure, e.g. of dimensions below 100 micrometers.
5. The production of ceramic powder is classified in this group in so far as it relates to the preparation of powder with specific characteristics.
6. In groups C04B 35/00 to C04B 35/83, from 01-01-2005 onwards, the indexing codes of groups C04B 2235/00 to C04B 2235/9692 are used to identify aspects relating to ceramic starting mixtures and sintered ceramic products

WARNING
Attention is drawn to WARNINGS 3 and 4 after subclass title

U C04B 35/01 · based on oxide ceramics
C04B 35/16 · · based on silicates other than clay {zircon C04B 35/48)
C04B 35/20 · · · rich in magnesium oxide, {e.g. forsterite C04B 35/195 takes precedence}
C04B 35/22  · · · rich in calcium oxide, e.g. wollastonite (C04B 35/195 takes precedence)
C04B 35/50  · based on rare-earth compounds ((non-oxide rare earth compounds C04B 35/5156))

U C04B 35/515  · based on non-oxide ceramics
C04B 35/56  · based on carbides (or oxycarbides (containing free metal binder C22C 29/00))
C04B 35/58  · based on borides, nitrides, [i.e. nitrides, oxynitrides, carbonitrides or oxy carbonitrides] or silicides ((containing free binder metal C22C 29/00))

U C04B 35/622  · Forming processes; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products

NOTE
In groups C04B 35/622 and subgroups indexing codes are given for aspects relating to the preparation, properties or mechanical treatment or to heat treatments of green bodies. The codes are chosen from C04B 2235/60 to C04B2235/66P

C04B 35/626  · Preparing or treating the powders individually or as batches ((pigments for ceramics C09C 1/0009); preparing or treating macroscopic reinforcing agents for ceramic products, e.g. fibres; mechanical aspects section B)

WARNING
Groups C04B 35/62605 to C04B 35/62695 are not complete, see also other subgroups of C04B 35/00, e.g. C04B 35/26

U C04B 35/64  · Burning or sintering processes (C04B 33/32 takes precedence; { powder metallurgy B22F})
C04B 35/65  · Reaction sintering of free metal- or free silicon-containing compositions ((C04B 35/573, C04B 35/591 take precedence))
C04B 35/66  · Monolithic refractories or refractory mortars, including those whether or not containing clay ((making or repairing of linings F27D 1/16))
C04B 35/71  · Ceramic products containing macroscopic reinforcing agents (C04B 35/66 takes precedence; { infiltration of a porous ceramic matrix with a material forming a non-ceramic phase C04B 41/00, reaction infiltration with Si in order to form SiC C04B 35/573, in order to form Si3N4 C04B 35/591})

NOTE
In groups C04B 35/71 to C04B 35/83 the composition of the ceramic products is also classified in groups C04B 35/01 to C04B 35/597

U C04B 35/78  · containing non-metallic materials
C04B 35/80  · Fibres, filaments, whiskers, platelets, or the like ((carbon reinforced with carbon fibres see C04B 35/83))

U C04B 41/00  · After-treatment of mortars, concrete, artificial stone or ceramics; Treatment of natural stone (conditioning of the materials prior to shaping C04B 40/00; applying liquids or other fluent materials to surfaces, in general B05; grinding or polishing B24; apparatus or processes for treating or working shaped articles of clay or other ceramic compositions, slag or mixtures containing cementitious material B28B 11/00; working stone or stone-like materials B28D; glazes, other than cold glazes, C03C 8/00; etching, surface-brightening or pickling compositions C09K 13/00)

NOTES
1. In this group, multiple classification is made according to the following rules:
   • when the substrate to be treated is of the artificial stone type, e.g. concrete, classification is made in the range C04B 41/00 to C04B 41/5392 as well as in the range C04B 41/60 to C04B 41/72
• when the substrate to be treated is of the ceramic type, classification is made in the range C04B 41/00 to C04B 41/5392 as well as in the range C04B 41/80 to C04B 41/91
• when the substrate to be treated is a-specific, classification is made only in the range C04B 41/00 to C04B 41/5392

2. In groups C04B 41/0018 to C04B 41/53, in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. Treating, e.g. coating or impregnating, a material with the same material or with a substance which ultimately is transformed into the same material is not considered after-treatment for this group but is classified as preparation of the material, e.g. a carbon body impregnated with a carbonisable substance is classified in C04B 35/52.

4. In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to the nature of the substrate being treated. The indexing codes, which are chosen from groups C04B 26/00 to C04B 38/00 should be unlinked.

5. In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to aspects of the coating composition or to the method of application. The indexing codes, which are chosen from groups C04B 41/00 to C04B 41/5392 should be unlinked.

6. Attention is drawn to internal Note (2) following the title of subclass C04B.

C04B 41/45
• Coating or impregnating (paints C09D), e.g. injection in masonry, partial coating of green or fired ceramics, organic coating compositions for adhering together two concrete elements (ion-implantation C04B 41/0027)

NOTES
1. In group C04B 41/45 and sub-groups, as a general rule, classification is made according to the end products, rather than according to the starting materials, in the coating or impregnating compositions.

2. In groups C04B 41/45 to C04B 41/528 the following term is used with the meaning indicated:
   • "coating" covers material applied to the substrates as powdery material or applied from the gas or liquid phase, e.g. as a slurry; it only covers the use of preformed sheet-like elements in so far as the thickness of these sheets is small compared with the thickness of the substrate and so far as the resulting product is not exclusively one of the type classifiable in B32B

U C04B 41/46
• with organic materials

C04B 41/49
• Compounds having one or more carbon-to-metal or carbon-to-silicon linkages {Organo-clay compounds; Organo-silicates, i.e. ortho- or polysilicic acid esters (to obtain SiO₂ C04B 41/5089, C04B 41/5035); Organo-phosphorus compounds; Organo-inorganic complexes}

NOTE
As distinct from the general practice in C04B 41/00, classification in C04B 41/49 and sub-groups is done according to the nature of the starting products, not according to the nature of the end products

U C04B 41/50
• with inorganic materials

C04B 41/51
• Metallising, e.g. infiltration of sintered ceramic preforms with molten metal (covering materials with metals in general C23C; ceramic compositions containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxyxnitrides or sulfides, other than as macroscopic reinforcing agents C22C; infiltration of preforms containing free metal, e.g. cermets C22C)
U C04B 2111/00  Mortars, concrete or artificial stone or mixtures to prepare them, characterised by specific function, property or use

U C04B 2111/00474 · Uses not provided for elsewhere in C04B 2111/00

U C04B 2111/0081 · · as catalysts or catalyst carriers
C04B 2111/00827 · · · Photocatalysts; (Materials containing photocatalysts to avoid staining by air pollutants C04B 2111/2061)

Project: N/A (C06B)

U C06B 23/00  Compositions characterised by non-explosive or non-thermic constituents
{(in combination with specific explosives C06B 25/20, C06B 25/26, C06B 29/04, C06B 29/08, C06B 31/06, C06B 31/40, C06B 33/02)}
C06B 23/006 · {Stabilisers (e.g. thermal stabilisers) (processes C06B 21/0091; foam stabilisers C06B 23/002)}

Project: N/A (C07C)

C07C  ACYCLIC OR CARBOCYCLIC COMPOUNDS

NOTES
1. In this subclass, the following terms or expressions are used with meanings indicated:
   - "bridged" means the presence of at least one fusion other than ortho, peri or spiro;
   - two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed;
   - "condensed ring system" is a ring system in which all rings are condensed among themselves;
   - "number of rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
   - "quinones" are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.

2. In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.

3. In this subclass, in the absence of an indication to the contrary, "quaternary ammonium compounds" are classified with the corresponding "non-quaternised nitrogen compounds".

4. For the classification of compounds in groups C07C 1/00 to C07C 71/00 and C07C 401/00 to C07C 409/00:
   - a compound is classified considering the molecule as a whole (rule of the "whole molecule approach");
   - a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
   - a compound is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes six-membered...
aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.

5. For the classification of compounds in groups C07C 201/00 to C07C 395/00, i.e. after the functional group has been determined according to the "last place rule", a compound is classified according to the following principles:
   • compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;
   • a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;
   • when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;
   • a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
   • a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.

6. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

7. When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C07C 27/02 covered by C07C 29/00, C07C 51/00
C07C 47/04, C07C 47/045, C07C 47/048, C07C 47/052, C07C 47/055, C07C 47/058 covered by C07C 47/04
C07C 47/07, C07C 47/09 covered by C07C 47/06
C07C 53/04 covered by C07C 53/02
C07C 57/045, C07C 57/05, C07C 57/055, C07C 57/065, C07C 57/07, C07C 57/075 covered by C07C 57/04
C07C 69/025, C07C 69/03, C07C 69/035 covered by C07C 69/003 to C07C 69/017 and C07C 69/02
C07C 69/34, C07C 69/353 covered by C07C 69/003 to C07C 69/017 and C07C 69/34
C07C 69/52, C07C 69/003 to C07C 69/17 and C07C 69/52
C07C 69/76, C07C 69/773, C07C 69/003 to C07C 69/17, and C07C 69/76
C07C 69/83 covered by C07C 69/003 to C07C 69/017 and C07C 69/82

Project: N/A (C07D)

U C07D 309/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only ring hetero atom, not condensed with other rings

U C07D 309/02 · having no double bonds between ring members or between ring members and non-ring members

U C07D 309/08 · · with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
C07D 309/14 · · · Nitrogen atoms not forming part of a nitro radical (\[(\text{nitro radical C07D 309/08})\])

Project: N/A (C07H)

U C07H 3/00 Compounds containing only hydrogen atoms and saccharide radicals having only carbon, hydrogen and oxygen atoms (preparation by hydrolysis of di- or polysaccharides \(\text{C13}\) and subgroups; separation and purification of sucrose, glucose, fructose, lactose or maltose \(\text{C13}\))

C07H 3/08 · Deoxysugars; Unsaturated sugars (1,2-dideoxy-1-enoses \(\text{C07D}\)); Osones \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 3/10 · Anhydrosugars, e.g. epoxides \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 5/00 Compounds containing saccharide radicals in which hetero bonds to oxygen have been replaced by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium or tellurium \((\text{when the hetero-atom is substituted C07H 11/00 , C07H 13/00 , C07H 15/00 , C07H 17/00 ; when the hetero-atom(s) form(s) part of a heteroring C07H 9/00 , C07H 19/00 , C07H 21/00 ; C07H 3/04 , C07H 3/06 , take precedence})\)

U C07H 5/04 · to nitrogen

C07H 5/06 · · Aminosugars \((\text{NH-acyl C07H 11/00 , C07H 13/00 ; NHR or NR2 C07H 15/00})\)

C07H 7/00 Compounds containing non-saccharide radicals linked to saccharide radicals by a carbon-to-carbon bond \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 7/02 · Acyclic radicals, e.g. glycuronic acids \((\text{gamma-lactones of 2- or 3-ketohexanoic or -pentanoic acids and derivatives thereof, (e.g. enol forms C07D 307/62) , e.g. ascorbic acid (1); D-galacturono-gamma-lactone (2); D-glucono-gamma-lactone (3); saccharosonic acid (4); D-gulono-gamma-lactone (5) Images})\)

C07H 13/00 Compounds containing saccharide radicals esterified by carbonic acid or derivatives thereof, or by organic acids, e.g. phosphonic acids \((\text{acetals C07H 9/04D ; C07H 3/04 , C07H 3/06 , C07H 13/12U take precedence; C07H 9/00 takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides C07H 19/00})\)

C07H 13/02 · by carboxylic acids \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 13/04 · · having the esterifying carboxyl radicals attached to acyclic carbon atoms \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 13/08 · · having the esterifying carboxyl radicals directly attached to carbocyclic rings \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 13/10 · · having the esterifying carboxyl radicals directly attached to heterocyclic rings \((\text{C07H 3/04 , C07H 3/06 take precedence})\)

C07H 13/12 · by acids having the group \(-X-C(=X)-X,- or halides thereof, in which each X means nitrogen, oxygen, sulfur, selenium or tellurium, e.g. carbonic acid, carbamic acid \((\text{C07H 3/04 , C07H 3/06 take precedence})\)
C07H 15/00  Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals {(acylated on hetero atoms of the saccharide radical C07H 13/00; derivatives of bis methylen dioxy carbohydrates C07H9/04D; C07H 3/04, C07H 3/06, take precedence; C07H 9/00 takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides C07H 19/00)}

NOTE
In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.

C07H 15/02  Acyclic radicals, not substituted by cyclic structures {(C07H 3/04, C07H 3/06, C07H15/00F take precedence)}

C07H 15/04  · · attached to an oxygen atom of the saccharide radical {(C07H 3/04, C07H 3/06 take precedence)}

C07H 15/10  · · containing unsaturated carbon-to-carbon bonds {(C07H 3/04, C07H 3/06 take precedence)}

C07H 15/12  · · attached to a nitrogen atom of the saccharide radical {(C07H 3/04, C07H 3/06, C07H15/10D2 take precedence)}

C07H 15/14  · · attached to a sulfur, selenium or tellurium atom of a saccharide radical {(C07H 3/04, C07H 3/06, C07H15/10D2 take precedence)}

C07H 15/18  Acyclic radicals, substituted by carbocyclic rings {(chalcones and hydrogenated chalcones derived from saccharides substituted by 1-benzopyran-4-one radicals are to be classified in C07H 17/07; C07H 3/04, C07H 3/06, C07H15/00F, C07H15/10D2 take precedence)}

C07H 15/20  · Carboxyclic rings {(C07H15/00F, C07H15/10D2 take precedence)}

U C07H 15/22  · · Cyclohexane rings, substituted by nitrogen atoms

NOTE
- for this two dot subdivision: Image
- for the three dot subdivisions: (C07H15/22B and C07H 15/222)

C07H 15/222  · · · Cyclohexane rings substituted by at least two nitrogen atoms {(at least two guanidine radicals C07H 15/238)}

C07H 17/00  Compounds containing heterocyclic radicals directly attached to hetero atoms of saccharide radicals {(C07H15/10D2, C07H 15/22, C07H 15/238 take precedence; C07H 15/252 takes precedence when the naphtacene ring is further condensed to a heteroring)}

C07H 19/00  Compounds containing a hetero ring sharing (only) one ring hetero atom with the saccharide radical [the ring-heteroatom of the saccharide radical is not to be taken into consideration]; Nucleosides; Mononucleotides {or mononucleosides}; Anhydro-derivatives thereof {(C07H15/10D2 takes precedence; intermediate for methods of chemical engineering C07H21/00C4)}

U C07H 19/02  · sharing nitrogen

C07H 19/04  · · Heterocyclic radicals containing only nitrogen atoms as ring hetero atoms {(C07H19/02B, C07H19/02D take precedence)}

C07H 19/044  · · Pyrrole radicals {(Pyrrolo-pyrimidines C07H 19/14)}

C07H 19/048  · · Pyridine radicals {(Pyridino-pyrimidine C07H19/06F, C07H19/10F)}

C07H 19/052  · · · Imidazole radicals {(Purines C07H 19/16)}
C07H 19/06  · · · Pyrimidine radicals (purine C07H 19/16; pyrimidino-triazines C07H 19/12; pteridines C07H 19/22; pyrrolo-pyrimidines C07H 19/24)

Project: N/A (C07J)

C07J 13/00  Normal steroids containing carbon, hydrogen, halogen or oxygen having a carbon-to-carbon double bond from or to position 17 (for carbonyl groups C07J 1/00)

Project: N/A (C07K)

U C07K 1/00  General methods for the preparation of peptides (i.e. processes for the organic chemical preparation of peptides or proteins of any length)

C07K 1/02  · in solution (C07K 1/003, C07K 1/006 take precedence)
C07K 1/04  · on carriers (C07K 1/003, C07K 1/006 take precedence)
C07K 1/06  · using protecting groups or activating agents (C07K 1/003, C07K 1/006 take precedence)
C07K 1/08  · using activating agents (C07K 1/003, C07K 1/006 take precedence)
C07K 1/10  · using coupling agents (C07K 1/006 takes precedence)

U C07K 14/00  Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof

U C07K 14/195  · from bacteria

NOTE  In groups C07K 14/20 to C07K 14/365, where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.

U C07K 14/315  · from Streptococcus (G), e.g. Enterococci
C07K 14/3156  · · · (from Streptococcus pneumoniae (Pneumococcus) (Streptokinase C07K 14/3153))

U C07K 14/435  · from animals; from humans
C07K 14/705  · · · Receptors; Cell surface antigens; Cell surface determinants (for tumour specific antigens C07K 14/4748)
C07K 14/72  · · · for hormones (for neuromediators C07K 14/70571)

C07K 16/00  Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies (antibodies with enzymatic activity, e.g. abzymes C12N 9/0002)

NOTES
1. Documents characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified in C07K 16/00 to C07K 16/065 or C07K 16/46 to C07K 16/468
2. Documents not characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified only according to their specificity, where necessary accompanied by one or more appropriate indexing codes

Project: N/A (C08B)

U C08B 1/00  {Preparatory treatment of cellulose for making derivatives thereof, e.g. pre-treatment, pre-soaking, activation}

C08B 1/02  · Rendering cellulose suitable for esterification (esterification per se, C08B 3/00, C08B 5/00, C08B 7/00 or C08B 9/00)
C08B 1/06  · Rendering cellulose suitable for etherification ((etherification per se C08B 11/00))

C08B 3/00  Preparation of cellulose esters of organic acids ((rendering cellulose suitable for esterification C08B 1/02))

C08B 5/00  Preparation of cellulose esters of inorganic acids, (e.g. phosphates (rendering cellulose suitable for esterification C08B 1/02))

C08B 5/02  · Cellulose nitrate,(i.e. nitrocellulose (rendering cellulose suitable for the preparation of cellulose nitrate C08B 1/04))

C08B 7/00  Preparation of cellulose esters of both organic and inorganic acids ((rendering cellulose suitable for esterification C08B 1/02))

C08B 9/00  Cellulose xanthate; Viscose ((formation of films C08J 5/18; formation of fibres D01F; rendering cellulose suitable for esterification C08B 1/02))

C08B 11/00 Preparation of cellulose ethers ((rendering cellulose suitable for etherification C08B 1/06))

U C08B 30/00 Preparation of starch, degraded or non-chemically modified starch, amyllose, or amylopectin

C08B 30/02 · Preparatory treatment, e.g. crushing of raw materials (or steeping process (machines for preliminary washing A23N))

C08B 30/12 · Degraded, (destructured) or non-chemically modified starch (e.g. mechanically, enzymatically or by irradiation; Bleaching of starch (preparation of chemical derivatives of starch C08B 31/00))

Project: N/A (C08F)

U C08F 4/00 Polymerisation catalysts (catalysts in general B01J)

NOTES
1. Group C08F 4/00 and subgroups can be incomplete according to the following classification rules: - if a catalyst is specifically used for only one type of polymer, it is not classified in C08F 4/00; - in such a case, the classification symbol of C08F 4/00 providing for the catalyst may be used as a symbol for a C-Set in the group providing for the polymer, e.g. ( C08F 12/04, C08F 4/62) - this method of classification is applied only when a note after the group providing for the polymer explicitly indicates which symbols of C08F 4/00 may be used for forming the C-set.

2. When classifying in group C08F 4/00, the type of catalyst can be further indexed by using indexing codes chosen from C08F 2410/00, C08F 2420/00 or their subgroups

U C08F 4/42 · Metals; Metal hydrides; Metallo-organic compounds; Use thereof as catalyst precursors

U C08F 4/44 · selected from light metals, zinc, cadmium, mercury, copper, silver, gold, boron, gallium, indium, thallium, rare earths or actinides

U C08F 4/46 · · selected from alkali metals

C08F 4/48 · · · selected from lithium, rubidium, caesium or francium ((C08F 4/461 takes precedence))
Post-polymerisation treatments (C08F 8/00) takes precedence; of conjugated diene rubbers C08C)

NOTES
1. In groups C08F 6/00 to C08F 6/28 the treatment of specific polymers is indicated using the subdivision of C08L 23/00 to C08L 57/12 in the form of C-Sets. Example: (C08F 6/12, C08L 25/06)
2. Groups C08F 6/001, C08F 6/006, C08F 6/008, C08F 6/02, C08F 6/04 take precedence over the other groups.

U C08F 6/06
- Treatment of polymer solutions
- Removal of catalyst residues (not used, see C08F 6/02)

U C08F 22/00
- Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof

U C08F 22/10
- Esters
  - of phenols or saturated alcohols (C08F 22/105 takes precedence)
  - of unsaturated alcohols (C08F 22/105 takes precedence)

U C08F 122/00
- Homopolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, and at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof

U C08F 122/10
- Esters
  - of phenols or saturated alcohols (C08F 122/105 takes precedence)
  - of unsaturated alcohols (C08F 122/105 takes precedence)

U C08F 222/00
- Copolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof

U C08F 222/10
- Esters
  - of phenols or saturated alcohols (C08F 222/106 takes precedence)
  - of unsaturated alcohols (C08F 222/106 takes precedence)

U C08F 255/00
- Macromolecular compounds obtained by polymerising monomers on to polymers of hydrocarbons as defined in group C08F 10/00

U C08F 255/02
- on to polymers of olefins having two or three carbon atoms
  - on to ethene-propene copolymers (C08F 255/023 takes precedence)
  - on to ethene-propene-diene terpolymers (C08F 255/023 takes precedence)

U C08F 283/00
- Macromolecular compounds obtained by polymerising monomers on to polymers provided for in subclass C08G (on to polymers modified by introduction of aliphatic unsaturated end or side groups C08F 290/00)

U C08F 283/01
- on to unsaturated polyesters (C08F 283/004 takes precedence)

NOTE
After the symbol of group C08F 283/01 - C08F 283/14 and using the C-Sets, notations concerning the method of polymerisation or the nature of the catalyst can be indicated. These notations are selected from groups C08F 2/00
C08F 283/02  on to polycarbonates or saturated polyesters \((\text{C08F 283/004 takes precedence})\)

C08F 283/04  on to polycarbonamides, polyesteramides or polyimides \((\text{C08F 283/004 takes precedence})\)

C08F 283/06  on to polyethers, polyoxymethylene or polyacetals \((\text{C08F 283/004 takes precedence})\)

C08F 283/10  on to polymers containing more than one epoxy radical per molecule \((\text{C08F 283/004 takes precedence})\)

C08F 283/14  on to polymers obtained by ring-opening polymerisation of carbocyclic compounds having one or more carbon-to-carbon double bonds in the carbocyclic ring, i.e. polyalkeneamers \((\text{C08F 283/004 takes precedence})\)

C08F 285/00  Macromolecular compounds obtained by polymerising monomers on to preformed graft polymers \((\text{C08F 283/00 takes precedence})\)

C08F 287/00  Macromolecular compounds obtained by polymerising monomers on to block polymers \((\text{C08F 283/00 takes precedence})\)

Project: N/A (C08J)

C08J 3/00  Processes of treating or compounding macromolecular substances

C08J 3/12  Powdering or granulating \((\text{preparation of active ingredients, e.g. medical preparations in form of capsules A61K 9/51; making granules B29B 9/00})\)

C08J 3/14  by precipitation from solutions \((\text{C08J 3/122 takes precedence})\)

C08J 3/16  by coagulating dispersions \((\text{C08J 3/122 takes precedence; treatment of polymer emulsion, e.g. coagulation C08F 6/22})\)

C08J 5/00  Manufacture of articles or shaped materials containing macromolecular substances (shaping of foodstuffs A23F; manufacture of semi-permeable membranes B01D 67/00 to B01D 71/00; mechanical features, see the relevant classes, e.g. B29)

C08J 5/12  Bonding of a preformed macromolecular material to the same or other solid material such as metal, glass, leather, e.g. using adhesives \((\text{mechanical aspects B29C 65/00})\)

C08J 5/18  Manufacture of films or sheets \((\text{Producing films or sheets B29D 7/01; wrappers or flexible covers, packaging materials of special type or form B65D 65/00 - B65D 65/466; shaping by stretching characterized by the choice of materials B29C 55/005; layered products essentially comprising synthetic resin B32B 27/00 - B32B 27/42})\)

C08J 5/20  Manufacture of shaped of ion-exchange resins [Use of macromolecular compounds as anion B01J 41/14 or cation B01J 39/20 exchangers]

C08J 5/22  Films, membranes, or diaphragms \((\text{ion-exchange in general, B01J 39/18 - B01J 39/22, B01J 41/12 - B01J 41/16, B01J 43/00, B01J 45/00, B01J 47/12 - B01J 49/00; fuel cells with polymeric electrolyte material H01M 8/1018})\)

NOTES

1. [N: Membranes of which at least the ion-exchanging parts are inorganic, i.e. mixtures of non polymeric ion exchange compounds, e.g. inorganic salts,
and at least one polymer are classified in \textit{C08J 5/22}; membranes based on cellulose are classified in \textit{C08J 5/2212}.

2. Methods for incorporating reinforcement supports or filling bodies are classified in \textit{C08J 5/2206} (the support or filling body has no ion exchange activity).

3. Groups, e.g. SO2F, which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g. SO2H, are considered as such.

4. Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in \textit{C08J 5/2275}; they include composite membranes, mixtures of two or more (ion exchange) polymers.

5. Membranes obtained by homogeneous melting or from a solution are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports e.g. in the form of fabrics, or the like, i.e. the ion exchange resin forms the membrane.

6. Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (membrane has already been formed) are classified in \textit{C08J 5/2287}.

7. Quaternising reactions are not considered as after-treatments.

\textbf{U C08J 7/00} \hspace{1cm} \textbf{C08L 1/00} \hspace{1cm} \textbf{C08L 33/00} \hspace{1cm} \textbf{C08L 97/00} \hspace{1cm} \textbf{C08L 101/00}

\textit{Chemical treatment or coating of shaped articles made of macromolecular substances (coating with metallic material \textit{C23C}; electrolytic deposition of metals \textit{C25})}

\textit{Compositions of cellulose, modified cellulose or cellulose derivatives}

\textit{Compositions of homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical, or of salts, anhydrides, esters, amides, imides or nitriles thereof; Compositions of derivatives of such polymers}

\textit{Compositions of lignin-containing materials}

\textit{Compositions of unspecified macromolecular compounds}
Project: N/A (C08L)

- characterised by the presence of specified groups, e.g. terminal or pendant functional groups
- containing oxygen atoms ((C08L 101/025 takes precedence))

Project: N/A (C09B)

- Dyes with anthracene nucleus not condensed with any other ring
  - Hydroxy-anthraquinones; Ethers or esters thereof ((C09B 1/007 takes precedence))
  - Amino-anthraquinones ((C09B 1/007 takes precedence))
  - Amino-hydroxy-anthraquinones; Ethers and esters thereof ((C09B 1/007 takes precedence))
  - Mercapto-anthraquinones ((C09B 1/007 takes precedence))

- Diaryl- or triarylmethane dyes
  - derived from triarylmethanes, i.e. central C-atom is substituted by amino, cyano, alkyl
  - Amino derivatives of triarylmethanes
  - without any OH group bound to an aryl nucleus
  - Preparation from other triarylmethane derivatives, e.g. by substitution, by replacement of substituents (for dyesalts of triarylmethane dyes (C09B 11/06))
  - Triarylmethane dyes in which at least one of the aromatic nuclei is heterocyclic (phthaleins (C09B 11/24))

- Monoazo dyes prepared by diazotising and coupling
  - from coupling components containing amino as the only directing group
  - Amino benzenes
  - (characterised by the substituent on the benzene ring excepted the substituents: CH₃, C₂H₅, O-alkyl, NHCO-alkyl, NHCOO-alkyl, NHCO- C₆H₅, NHCOO-C₆H₅)
  - (linked through -O- (for OH see C09B 29/24, C09B 29/26))

- Disazo and polyazo dyes of the type A<-D->B prepared by diazotising and coupling
  - Disazo dyes
  - characterised by the tetrazo component
  - the tetrazo component being a derivative of a diaryl- or triaryl- alkane or-alkene
  - of diarylethane or diarylethene ((other stilbene-azo dyes, C09B 56/04, C09B 56/06))

- Special methods of performing the coupling reaction (reaction of mixtures of diazo and coupling components, C09B 67/0033))

- Preparation of azo dyes from other azo compounds
  - by acylation of hydroxyl group (or of mercapto group; (OPO₃H₂ and OP(X) (XR)₂ with X=O,S,NH and R being hydrocarbon, C09B 69/007))

- Porphines; Azaporphines (non-dyeing compounds C07D 487/22))

- Azo dyes containing other chromophoric systems
  - Azomethine-azo dyes ((1,2-Complex dyes of AZOMETHINE and AZO dyes, C09B 55/001))
C09B 56/04  · Stilbene-azo dyes {disazo dyes from diaminostilbene, C09B 35/215}
C09B 56/12  · Anthraquinone-azo dyes {from diazotised aminoanthracene C09B 29/0022, azo dyes containing hydroxyl groups acylated with polyfunctional anthraquinone derivatives C09B 43/26}

U C09B 62/00 Reactive dyes, i.e. dyes which form covalent bonds with the substrates or which polymerise with themselves

U C09B 62/44  · with the reactive group not directly attached to a heterocyclic ring
U C09B 62/503  · the reactive group being an esterified or non-esterified hydroxyalkyl sulfonyl or mercaptoalkyl sulfonyl group, a quaternised or non-quaternised aminoalkyl sulfonyl group, a heterymercapto alkyl sulfonyl group, a vinyl sulfonyl or a substituted vinyl sulfonyl group, or a thiophene-dioxide group
C09B 62/505  · · Anthracene dyes {(C09B 62/5033, C09B 62/5036 take precedence)}
C09B 62/507  · · Azo dyes {(C09B 62/5033, C09B 62/5036 take precedence)}
C09B 62/517  · · · Porphines; Azaporphines {(C09B 62/5033, C09B 62/5036 take precedence)}

U C09B 69/00 Dyes not provided for by a single group of this subclass
C09B 69/08  · Dyes containing a splittable water solubilizing group {Dyes containing an onium group attached to the dye molecule via a bridge are to be considered as cationic dyes and are classified with the respective dyes such as C09B 44/02 to C09B 44/08; C09B69/00B - C09B69/00B6}
C09B 69/10  · Polymeric dyes; Reaction products of dyes with monomers or with macromolecular compounds {(addition products of alkylene oxide to dyes, C09B 69/00; dyeing with polymeric dyes D06P 1/0056)}

Project: N/A (C09C)

U C09C 1/00 Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials C09K); Preparation of carbon black
U C09C 1/44  · Carbon
U C09C 1/48  · · Carbon black
C09C 1/50  · · · Furnace black; {Preparation thereof (separation or recovery C09C 1/487)}
C09C 1/52  · · · Channel black; {Preparation thereof (separation or recovery C09C 1/487)}
C09C 1/54  · · · Acetylene black; Thermal black; {Preparation thereof (separation or recovery C09C 1/487)}

Project: N/A (C09D)

C09D 5/00  Coating compositions, e.g. paints, varnishes or lacquers, characterised by their physical nature or the effects produced; Filling pastes {(magnetisable or magnetic paints H01F 1/00; electrically insulating paints H01B 3/00; paints for electrophoretic applications C25D 13/00)}
C09D 5/22  · Luminous paints {(luminescent compositions C09K 11/00)}
C09D 5/24  · Electrically-conducting paints {(conductive materials H01B 1/00)}
C09D 5/32  · Radiation-absorbing paints {(protection against X-, gamma- or corpuscular radiation G21F)}
C09D 10/00 Correcting fluids, e.g. fluid media for correction of typographical errors by coating {(correcting errors by overprinting B41J 29/36)}

U C09D 201/00 Coating compositions based on unspecified macromolecular compounds
U C09D 201/02  · characterised by the presence of specified groups, e.g. terminal or pendant functional groups
C09D 201/06  · · containing oxygen atoms \{(C09D 201/025 takes precedence)\}

Project: N/A (C09J)

U C09J 201/00  Adhesives based on unspecified macromolecular compounds

U C09J 201/02  · characterised by the presence of specified groups,\{e.g. terminal or pendant functional groups\}

C09J 201/06  · · containing oxygen atoms \{(C09J 201/025 takes precedence)\}

Project: N/A (C09K)

U C09K 3/00  Materials not provided for elsewhere

NOTE
When classifying in groups C09K 3/10 to C09K 3/1028 the properties and uses of the material can be further indexed by using indexing codes chosen from C09K 2003/1034 to C09K 2003/1096 and the chemical nature of the materials can be further indexed by using indexing codes chosen from C09K 2200/00 to C09K 2200/0697

C09K 3/14  · Anti-slip materials; Abrasives \{(products specifically intended for the fabrication of abrasive tools, blocks or papers, or for operations of the kind of sand-blasting and barrelling B24B 31/14, B24C 1/00; polishing compositions containing abrasive or grinding agents C09G 1/02; polishing of semi-conductors H01L; friction compositions for brakes or clutches F16D 69/02)\}

NOTE
In this group, boron and silicon are considered as being metals. Likewise for associations of carbon with metals, e.g. carbides.

U C09K 8/00  Compositions for drilling of boreholes or wells; Compositions for treating boreholes or wells, e.g. for completion or for remedial operations

NOTE
In groups C09K 8/00 to C09K 8/94 it is desirable to add indexing codes for aspects relating to compositions for drilling or treating boreholes or wells. The indexing codes are chosen from groups C09K 2208/00 to C09K 2208/32

U C09K 8/50  · Compositions for plastering borehole walls, i.e. compositions for temporary consolidation of borehole walls (compositions for consolidating loose sand or the like around wells C09K 8/56)

U C09K 8/504  · · Compositions based on water or polar solvents \{(C09K 8/502 takes precedence)\}

U C09K 8/506  · · · containing organic compounds

C09K 8/508  · · · · macromolecular compounds \{(C09K 8/512 takes precedence)\}

U C09K 8/58  · Compositions for enhanced recovery methods for obtaining hydrocarbons, i.e. for improving the mobility of the oil, e.g. displacing fluids

C09K 8/588  · · characterised by the use of specific polymers \{(polymeric surfactants C09K 8/584)\}

Project: N/A (C10G)

U C10G 35/00  Reforming naphtha

NOTE
By reforming is meant the treatment of naphtha, in order to improve the octane number or its aromatic content.

U C10G 35/04  · Catalytic reforming
characterised by the catalyst used
· · containing crystalline alumino-silicates, e.g. molecular sieves (C10G 35/065 takes precedence)

Cracking of hydrocarbon oils in the presence of hydrogen or hydrogen generating compounds, to obtain lower boiling fractions, (C10G 15/00 takes precedence; destructive hydrogenation of non-melting solid carbonaceous or similar materials C10G 1/06)

Details of gasification processes
· Integration of gasification processes with another plant or parts within the plant
· with conversion of synthesis gas
· Conversion of synthesis gas to energy
· integrated in an gasification combined cycle (IGCC) (engines driven by heat coming from a gasification or pyrolysis unit F01K 23/067)
· Conversion of synthesis gas to chemicals
· to methane (SNG) (production of synthetic natural gas C10L 3/08)

Liquid carbonaceous fuels
· containing additives
· Organic compounds
· Containing oxygen
· containing hydroxy groups; Salts thereof (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)
· at least one hydroxy group bound to an aromatic carbon atom (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1828 take precedence)
· Ethers; Acetals; Ketals; Aldehydes; Ketones (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)
· Carboxylic acids; {metal}salts thereof (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence)
· having at least one carboxyl group bound to an aromatic carbon atom (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817, C10L 1/1885, C10L 1/1886, C10L 1/1888 take precedence)
· Esters (ester radical containing compounds; ester ethers; carboxylic acid esters (C10L 1/1802, C10L 1/1805, C10L 1/1808, C10L 1/1811, C10L 1/1814, C10L 1/1817 take precedence))
· containing nitrogen
· containing at least one carbon-to-nitrogen single bond (C10L 1/221 takes precedence)
· having at least one amino group bound to an aromatic carbon atom (C10L 1/221, C10L 1/2227 take precedence)
· Amides; Imides (carboxylic acid amides, imides C10L 1/221, C10L 1/2227 take precedence)
containing at least one nitrogen-to-nitrogen bond, e.g. azo compounds, azides, hydrazines ((C10L 1/221 takes precedence))

containing at least one carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones, imines; containing at least one carbon-to-nitrogen triple bond, e.g. nitriles ((C10L 1/221, C10L 1/226 take precedence))

containing at least one nitrogen-to-oxygen bond, e.g. nitro-compounds, nitrates, nitrites ((C10L 1/221 takes precedence))

containing nitrogen in a heterocyclic ring ((C10L 1/221 takes precedence))

containing nitrogen and oxygen in the ring, e.g. oxazoles ((C10L 1/221 takes precedence))

Macromolecular compounds ((C10L 1/221 takes precedence))

obtained by reactions involving only carbon-to-carbon unsaturated bonds (derivatives thereof (C10L 1/221 takes precedence))

obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds ((C10L 1/221 takes precedence))

Polyamines or polyimines, or derivatives thereof (polyamines and imines; derivatives thereof (substituted by a macromolecular group containing 30C) ((C10L 1/221 takes precedence))

Polyoxyalkyleneamines (polyoxyalkylene amines and derivatives thereof (substituted by a macromolecular group containing 30C) ((C10L 1/221 takes precedence))

Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass C10G, C10K; Liquefied petroleum gas

Solid fuels (produced by solidifying fluid fuels C10L 7/00)

Pretreatment of vegetable raw material ((C10L 1/025 takes precedence))

Raw material (of mineral origin) to be used; Pretreatment thereof ((pretreatment of fuels of non-mineral origin C10L 5/40))

essentially based on materials of non-mineral origin

on sewage, house, or town refuse ((C10L 5/403, C10L 5/406 take precedence))

on industrial residues and waste materials ((C10L 5/403, C10L 5/406 take precedence))

Working-up used lubricants to recover useful products ((destructive distillation C10B; extraction and elimination of PCBs C10G 7/006, C10G 21/006, C10G 25/006; combustion processes F23G; Filtration, filters in general B01D); Cleaning (in a mechanical way B08B; integrated processes C23; solid waste B09B))

Production of fats or fatty oils from raw materials

Pretreatment

of vegetable raw material ((C11B 1/025 takes precedence))

Refining fats or fatty oils
C11B 3/02 · by chemical reaction {C11B 3/003 takes precedence}

U C11B 7/00 Separation of mixtures of fats or fatty oils into their constituents, e.g. saturated oils from unsaturated oils

NOTE
In groups C11B 7/0008 to C11B 7/0091, in the absence of an indication to the contrary an invention is classified in the last appropriate place

C11B 7/0083 · {with addition of auxiliary substances, e.g. crystallisation promoters, filter aids, melting point depressors, (if a characterised solution is formed C11B 7/0008)}

Project: N/A (C12C)

U C12C 12/00 Processes specially adapted for making special kinds of beer

C12C 12/04 · Beer with low alcohol content {(removal of alcohol after fermentation C12G 3/08)}

U C12C 13/00 Brewing devices, not covered by a single group of C12C 1/00 to C12C 12/04

C12C 13/02 · Brew kettles {C12C 11/075 takes precedence}

Project: N/A (C12N)

U C12N 1/00 Micro-organisms, e.g. protozoa; Compositions thereof (medicinal preparations containing material from micro-organisms A61K 35/66; preparing medicinal bacterial antigen or antibody compositions, e.g. bacterial vaccines A61K 39/00); Processes of propagating, maintaining or preserving micro-organisms or compositions thereof; Processes of preparing or isolating a composition containing a micro-organism; Culture media therefor

C12N 1/20 · Bacteria {{bacteria per se C12R 1/01 to C12R 1/64}}; Culture media therefor

C12N 5/00 Undifferentiated human, animal or plant cells, e.g. cell lines; Tissues; Cultivation or maintenance thereof; Culture media therefor; (plant reproduction by tissue culture techniques A01H 4/00)

NOTE
In this group, the following words are used with the meanings indicated:

• a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;
• a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);
• a "multipotent" cell is restricted to one lineage;
• "progenitor" and "precursor" cells are further restricted within the lineage. If not explicitly foreseen, totipotent cells are classified with pluripotent cells. Multipotent cells should not be classified with pluripotent cells. Unless provided for otherwise, committed progenitors are classified with their progeny.

C12N 5/04 · Plant cells or tissues {{culture media C12N 5/0025}}

U C12N 5/06 · Animal cells or tissues; {Human cells or tissues (preservation of living cells or tissues A01N 1/02); Not used, see subgroups}

NOTE
In this group, the following words are used with the meanings indicated:

• a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;
• a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);
• a "multipotent" cell is restricted to one lineage. "Progenitor" and "precursor" cells are further restricted within the lineage. If not explicitly foreseen, totipotent cells are classified with pluripotent cells. Multipotent cells should not be classified with pluripotent cells.

NOTE
Three-dimensional culture, tissue culture or organ culture are classified with the corresponding cells, if not specially provided for.

U C12N 5/0602
• (Vertebrate cells)

U C12N 5/0603
• • • (Embryonic cells (production of embryos, nuclear transfer A01K 67/027; Embryoid bodies)

C12N 5/0606
• • • • {Pluripotent embryonic cells, e.g. embryonic stem cells [ES] (embryonic germ cells C12N 5/0611 , induced pluripotent stem cells C12N 5/0696)}

U C12N 9/00
Enzymes; Proenzymes; Compositions thereof (preparations containing enzymes for cleaning teeth A61K 8/66, A61Q 11/00; medicinal preparations containing enzymes or pro-enzymes A61K 38/43; enzyme containing detergent compositions C11D; {enzymes with nucleic acid structure, e.g. ribozymes, C12N 15/113}); Processes for preparing, activating, inhibiting, separating or purifying enzymes (preparation of malt C12C 1/00)

NOTE
Enzymes are generally categorized below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.

C12N 9/10
• Transferases (2.) (ribonucleases C12N 9/22)

U C12N 9/14
• Hydrolases (3)

U C12N 9/16
• • acting on ester bonds (3.1)

C12N 9/22
• • • Ribonucleases (RNAses, DNAses (catalytic nucleic acids C12N 15/113))

U C12N 15/00
Mutation or genetic engineering; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification; Use of hosts therefor (mutants or genetically engineered micro-organisms, per se C12N 1/00, C12N 5/00, C12N 7/00; new plants per se A01H; plant reproduction by tissue culture techniques A01H 4/00; new animals per se A01K 67/00; use of medicinal preparations containing genetic material which is inserted into cells of the living body to treat genetic diseases, gene therapy A61K 48/00)

C12N 15/02
• Preparation of hybrid cells by fusion of two or more cells, e.g. protoplast fusion { (monoclonal antibodies C07K 16/00; apparatus for cell fusion C12M)}

U C12N 15/09
• Recombinant DNA-technology

U C12N 15/11
• DNA or RNA fragments; Modified forms thereof (DNA or RNA not used in recombinant technology, C07H 21/00; {Non-coding nucleic acids having a biological activity})

NOTE
Documents relating to DNA or its corresponding RNA and their use in recombinant DNA technology or the preparation of specific peptides, e.g. enzymes, are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their use in recombinant technology. Groups C12N 15/11 to C12N 15/117 cover also the use of non-coding nucleic acids as active ingredients in medicinal preparations. The C12N2300/00 ICO scheme
has to be applied to these groups. When documents classifiable in one or more subgroups disclose general principles of the technology applicable to the whole field, classification is also made in group C12N 15/111.

C12N 15/113 Non-coding nucleic acids modulating the expression of genes, e.g. antisense oligonucleotides; {Antisense DNA or RNA; Triplex-forming oligonucleotides; Catalytic nucleic acids, e.g. ribozymes; Nucleic acids used in co-suppression or gene silencing (when used in plants C12N 15/8218)}

U  C12N 2501/00 Active agents used in cell culture processes, e.g. differentiation

NOTE
Whenever possible, indexation is done by signalling pathway and not by chemical structure, e.g. the group of a protein covers not only peptide analogs of it and the corresponding nucleic acids, as in C07K 14/00, but also antibodies, anti-idiotypic antibodies, non-peptide ligands of the receptor, the receptor itself, antibodies against the receptor or inhibitors of the conversion enzyme which processes the protein precursor. Unless otherwise provided for, ligands and substrates take precedence over receptors and enzymes.

U  C12N 2501/70 Enzymes
C12N 2501/72 Transferases (EC 2.) (acyetylation of histones C12N 2501/065)

Project: N/A (C12P)

C12P 3/00 Preparation of elements or inorganic compounds except carbon dioxide {(Recovery of carbon dioxide as by-products C12P 3/02)}

U  C12P 5/00 Preparation of hydrocarbons {or halogenated hydrocarbons}
C12P 5/02 acyclic {(C12P 5/007 takes precedence)}

U  C12P 7/00 Preparation of oxygen-containing organic compounds
C12P 7/62 Carboxylic acid esters {(fatty acid esters C12P 7/6436)}
C12P 9/00 Preparation of organic compounds containing a metal or atom other than H, N, C, O, S or halogen {(phosphoglycerides, C12P 7/6481)}

U  C12P 13/00 Preparation of nitrogen-containing organic compounds
C12P 13/04 Alpha- or beta- amino acids {(other amino acids C12P 13/005)}
C12P 15/00 Preparation of compounds containing at least three condensed carbocyclic rings {(Gibbanes C12P 27/00; naphthacenes C12P 29/00)}

U  C12P 17/00 Preparation of heterocyclic carbon compounds with only O, N, S, Se or Te as ring hetero atoms (C12P 13/04 to C12P 13/24 take precedence)
C12P 17/16 containing two or more hetero rings {(Thiamine open chain analogs C12P 17/167; i.e. not condensed among themselves or through a common carbocyclic ring system)}
C12P 17/18 containing at least two hetero rings condensed among themselves or condensed with a common carbocyclic ring system, e.g. rifamycin, {(e.g. Rifamycin C12P 17/189)}

U  C12P 19/00 Preparation of compounds containing saccharide radicals (keto-aldonic acids C12P 7/58)

NOTE
Attention is drawn to the term "saccharide radical" in the first Note following the title of subclass C07H.
Preparation of O-glycosides, e.g. glucosides (Polysaccharides and not substituted disaccharides C12P 19/04, C12P 19/12)

having an oxygen of the saccharide radical directly bound to a non-saccharide heterocyclic ring or a condensed ring system containing a non-saccharide heterocyclic ring, e.g. coumermycin, novobiocin (C12P 19/60)

Preparation of steroids

NOTES
1. Attention is drawn to the definition of steroids in the note following the title of subclass C07J.
2. In groups C12P 33/02 to C12P 33/20, the terms "acting", "forming", "hydroxylating", "dehydroxylating" and "dehydrogenating" refer to the action of a micro-organism or enzyme rather than other chemical action.

Acting on D ring (carbons 13 and 14 belong to the C ring; degradation of lateral chains C12P 33/005)

containing heterocyclic rings (reactions are also classified in groups C12P 33/00 to C12P 33/18)

Measuring or testing processes involving enzymes, nucleic acids or microorganisms (measuring or testing apparatus with condition measuring or sensing means, e.g. colony counters C12M 1/34; Compositions therefor; Processes of preparing such compositions

Determining presence or kind of micro-organism; Use of selective media for testing antibiotics or bacteriocides; Compositions containing a chemical indicator therefor (C12Q 1/6897 takes precedence)

Random amplification polymorphism detection (RAPD) (not to be used with C12Q 2525/179)

Oxidoreductases acting on the CH-OH group of donors (1.1)

with NAD+ or NADP+ as acceptor (1.1.1)

Acetoin dehydrogenase (1.1.1.5) (C12Y 101/01303, C12Y 101/01304 take precedence)

Fenchol dehydrogenase (1.1.1.182) (C12Y 101/01284, C12Y 101/01227, C12Y 101/01228 take precedence)

with other acceptors (1.1.99)

Alcohol dehydrogenase (acceptor) (1.1.99.8) (C12Y 101/02007, C12Y 101/02008 take precedence)

Oxidoreductases acting on the aldehyde or oxo group of donors (1.2)

with NAD+ or NADP+ as acceptor (1.2.1)

Formaldehyde dehydrogenase (glutathione) (1.2.1.1) (C12Y 101/01284, C12Y 404/01022 take precedence)

Oxidoreductases acting on the CH-NH2 group of donors (1.4)
C12Y 104/03  
- with oxygen as acceptor (1.4.3)

C12Y 104/03006  
- Amine oxidase (copper-containing)(1.4.3.6) (C12Y 104/03021 or C12Y 104/03022 takes precedence)

C12Y 105/00  
Oxidoreductases acting on the CH-NH group of donors (1.5)

C12Y 105/03  
- with oxygen as acceptor (1.5.3)

C12Y 105/03011  
- Polyamine oxidase (1.5.3.11) (C12Y 105/03013 or C12Y 105/03017 take precedence)

C12Y 105/00  
Oxidoreductases acting on sulfur groups as donors (1.8)

C12Y 105/03  
- with a disulfide as acceptor (1.8.4)

C12Y 105/03005  
- Methionine-S-oxide reductase (1.8.4.5) (C12Y 105/03013 or C12Y 105/03014 takes precedence)

C12Y 113/00  
Oxidoreductases acting on single donors with incorporation of molecular oxygen (oxygenases) (1.13)

C12Y 113/11  
- with incorporation of two atoms of oxygen (1.13.11)

C12Y 113/11044  
- Linoleate diol synthase (1.13.11.44) (C12Y 113/1106, C12Y 504/04006 take precedence)

C12Y 201/00  
Transferases transferring one-carbon groups (2.1)

C12Y 201/01  
- Methyltransferases (2.1.1)

C12Y 201/01023  
- Protein-arginine N-methyltransferase (2.1.1.23) (C12Y 201/01124 - C12Y 201/01126 take precedence)

C12Y 201/01024  
- Protein-gamma-glutamate O-methyltransferase (2.1.1.24) (C12Y 201/01077, C12Y 201/0108, C12Y 201/011 take precedence)

C12Y 201/01029  
- tRNA (cytosine-5-)-methyltransferase (2.1.1.29) (C12Y 201/01202, C12Y 201/01204 take precedence)

C12Y 201/01031  
- tRNA (guanine-N1-)-methyltransferase (2.1.1.31) (C12Y 201/01221, C12Y 201/01228 take precedence)

C12Y 201/01032  
- tRNA (guanine-N2-)-methyltransferase (2.1.1.32) (C12Y 201/01213, C12Y 201/01216 take precedence)

C12Y 201/01036  
- tRNA (adenine-N1-)-methyltransferase (2.1.1.36) (C12Y 201/01217, C12Y 201/0122 take precedence)

C12Y 201/01048  
- rRNA (adenine-N6-)-methyltransferase (2.1.1.48) (C12Y 201/01181, C12Y 201/01184 take precedence)

C12Y 201/01051  
- rRNA (guanine-N1-)-methyltransferase (2.1.1.51) (C12Y 201/01187, C12Y 201/01188 take precedence)

C12Y 201/01052  
- rRNA (guanine-N2-)-methyltransferase (2.1.1.52) (C12Y 201/01171, C12Y 201/01174 take precedence)

C12Y 201/01194  
- 23S rRNA (adenine2503-C2,C8)-dimethyltransferase (2.1.1.194) (C12Y 201/01192, C12Y 201/01224 take precedence)

C12Y 204/00  
Glycosyltransferases (2.4)

C12Y 204/01  
- Hexosyltransferases (2.4.1)

C12Y 204/01051  
- UDP-N-acetylglucosamine-glycoprotein N-acetylglycosaminyltransferase (2.4.1.51) (C12Y 204/01101, C12Y 204/01143, C12Y 204/01145 take precedence)

C12Y 204/0113  
- Dolichyl-phosphate-mannose-glycolipid alpha-mannosyltransferase (2.4.1.130) (C12Y 204/01258, C12Y 204/01261 take precedence)

C12Y 205/00  
Transferases transferring alkyl or aryl groups, other than methyl groups (2.5)
U C12Y 205/01  · transferring alkyl or aryl groups, other than methyl groups (2.5.1)
C12Y 205/01011  · · Trans-octaprenyltranstransferase (2.5.1.11) (C12Y 205/01084, C12Y 205/01085 take precedence)
C12Y 205/01033  · · Trans-pentaprenyltranstransferase (2.5.1.33) (C12Y 205/01082, C12Y 205/01083 take precedence)
C12Y 205/01064  · · 2-Succinyl-6-hydroxy-2,4-cyclohexadiene-1-carboxylate synthase (2.5.1.64) (C12Y 202/01009, C12Y 402/9902 take precedence)

U C12Y 207/00 Transferring enzymes transferring phosphorus-containing groups (2.7)
U C12Y 207/01  · Phosphotransferases with an alcohol group as acceptor (2.7.1)
C12Y 207/01037  · · Protein kinase (2.7.1.37) (C12Y 207/11001, C12Y 207/11008 - C12Y 207/11013, C12Y 207/11021, C12Y 207/11022, C12Y 207/11024, C12Y 207/11025, C12Y 207/11026, C12Y 207/1103 or C12Y 207/12001 takes precedence)
C12Y 207/01112  · · Protein-tyrosine kinase (2.7.1.112) (C12Y 207/10001, C12Y 207/10002 take precedence)

U C12Y 301/00 Hydrolases acting on ester bonds (3.1)
U C12Y 301/01  · Carboxylic ester hydrolases (3.1.1)
C12Y 301/01016  · · 4-Carboxymethyl-4-hydroxyisocrotonolactonase (3.1.1.16) (C12Y 301/01024, C12Y 503/03004 take precedence)
C12Y 301/01021  · · Retinyl-palmitate esterase (3.1.1.21) (C12Y 301/01001, C12Y 301/01003 take precedence)

U C12Y 303/00 Hydrolases acting on ether bonds (3.3)
U C12Y 303/02  · Ether hydrolases (3.3.2)
C12Y 303/02003  · · Epoxide hydrolase (3.3.2.3) (C12Y 303/02009 or C12Y 303/0201 takes precedence)

U C12Y 304/00 Hydrolases acting on peptide bonds i.e. peptidases (3.4)
U C12Y 304/13  · Dipeptidases (3.4.13)
C12Y 304/13003  · · Xaa-His dipeptidase (3.4.13.3) (C12Y 304/13018, C12Y 304/1302 take precedence)
C12Y 304/13011  · · Dipeptidase (3.4.13.11) (C12Y 304/13018 or C12Y 304/13019 takes precedence)
U C12Y 304/14  · Dipeptidyl-peptidases and tripeptidyl-peptidases (3.4.14)
C12Y 304/14008  · · Tripeptidyl peptidase (3.4.14.8) (C12Y 304/14009, C12Y 304/1401 takes precedence)
U C12Y 304/16  · Serine-type carboxypeptidases (3.4.16)
C12Y 304/16001  · · Serine carboxypeptidase (3.4.16.1) (C12Y 304/16005, C12Y 304/16006 take precedence)
U C12Y 304/21  · Serine endopeptidases (3.4.21)
C12Y 304/21008  · · Kallikrein (3.4.21.8) (C12Y 304/21034, C12Y 304/21035 take precedence)
C12Y 304/21011  · · Elastase (3.4.21.11) (C12Y 304/21036 or C12Y 304/21037 takes precedence)
C12Y 304/21014  · · Microbial serine proteases (3.4.21.14) (C12Y 304/21062, C12Y 304/21067 take precedence)
C12Y 304/21031  · · Urokinase (3.4.21.31) (C12Y 304/21068 or C12Y 304/21073 takes precedence)
U C12Y 304/22  · Cysteine endopeptidases (3.4.22)
C12Y 304/22004  · · Bromelain (3.4.22.4) (C12Y 304/22032 or C12Y 304/22033 takes precedence)
C12Y 304/22017  · · Calpain (3.4.22.17) (C12Y 304/22052, C12Y 304/22053 take precedence)
U C12Y 304/23  · · Aspartic endopeptidases (3.4.23)
C12Y 304/23006  · · Microbial carboxyl proteinases (3.4.23.6) (C12Y 304/23018 - C12Y 304/23028 or C12Y 304/2303 takes precedence)
U C12Y 304/24  · · Metalloendopeptidases (3.4.24)
C12Y 304/24004  · · Microbial metalloproteinases (3.4.24.4) (C12Y 304/24025 - C12Y 304/24032, C12Y 304/24039 or C12Y 304/2404 takes precedence)
C12Y 304/24005  · · Lens neutral proteinase (3.4.24.5) (C12Y 304/22052, C12Y 304/22053, C12Y 304/25001 take precedence)
U C12Y 401/00  Carbon-carbon lyases (4.1)
U C12Y 401/02  · · Aldehyde-lyases (4.1.2)
C12Y 401/02037  · · Hydroxynitrilase (4.1.2.37) (C12Y 401/02046, C12Y 401/02047 take precedence)
U C12Y 402/00  Carbon-oxygen lyases (4.2)
U C12Y 402/99  · · Other carbon-oxygen lyases (4.2.99)
C12Y 402/99006  · · Chondroitin sulfate lyase (4.2.99.6) (C12Y 402/02005, C12Y 402/0202, C12Y 402/02021 take precedence)
U C12Y 403/00  Carbon-nitrogen lyases (4.3)
U C12Y 403/01  · · Ammonia-lyases (4.3.1)
C12Y 403/01005  · · Phenylalanine ammonia-lyase (4.3.1.5) (C12Y 403/01023, C12Y 403/01025 takes precedence)
U C12Y 502/00  Cis-trans-isomerases (5.2)
U C12Y 502/01  · · Cis-trans-Isomerases (5.2.1)
C12Y 502/01003  · · Retinal isomerase (5.2.1.3) (C12Y 101/013, C12Y 101/01315, C12Y 203/01135, C12Y 301/01064 take precedence)

Project: N/A (C13)

SUGAR INDUSTRY (polysaccharides, e.g. starch, derivatives thereof C08B; malt C12C)

NOTES
1. In class C13, the following terms or expressions are used with the meanings indicated:
   · "sugars" are a class of edible, water-soluble crystalline carbohydrates, having a characteristic sweet taste, including mono-, di- and oligosaccharides, e.g. sucrose, lactose and fructose. A more specific meaning of the term "sugar" is defined in the note of subclass C13B.
2. Processes using enzymes or micro-organisms in order to:
   i. to liberate, separate or purify a pre-existing compound or composition, or to
   ii. to treat textiles or clean solid surfaces of materials are further classified in subclass C12S.

Project: N/A (C22B)

U C22B 4/00  Electrothermal treatment of ores or metallurgical products for obtaining metals or alloys (obtaining iron or steel C21B, C21C)
C22B 4/02  · · Light metals ((C22B 4/005 takes precedence))
C22B 4/04  · · Heavy metals ((C22B 4/005 takes precedence))
C22B 4/06  · · Alloys ((C22B 4/005 takes precedence))
C22B 9/00 General processes of refining or remelting of metals; Apparatus for electroslag or arc remelting of metals

- Refining by liquating, filtering, centrifuging, distilling, or supersonic wave action (including acoustic waves; [C22B 9/003, C22B 9/006, C22B 9/05, C22B 9/22 take precedence])

C22B 9/02

- Remelting metals (liquating C22B 9/02)

C22B 9/16

- Electroslag remelting (electroslag casting B22D 23/10)

C22B 9/18

C22B 9/16 Obtaining noble metals

- by wet processes; ([B22D 3/16 takes precedence; treatment or purification of solutions by liquid-liquid extraction C22B 3/0005, by ion exchange or by adsorption C22B 3/00, C01G: C22B 3/16, C22B 3/0005])

C22B 11/00

C22B 11/04

C22B 21/00 Obtaining aluminium

- with reducing (C22B 21/04 takes precedence)

C22B 30/00

C22B 30/04

C22B 34/00 Obtaining refractory metals

- Obtaining titanium, zirconium or hafnium

C22B 34/10

- Obtaining zirconium or hafnium ([Treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption C22B 3/00, C01G 25/003, C01G 27/003])

C22B 34/14

C22B 34/30

C22B 34/34

C22B 41/00

C22B 58/00

C23 COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL (by metallising textiles D06M 11/83; decorating textiles by locally metallising D06Q 1/04); CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (for specific applications, see the relevant places, e.g. for manufacturing resistors H01C 17/06); INHIBITING CORROSION OF METALLIC MATERIAL OR INCrustATION IN GENERAL (treating metal surfaces or coating of metals by electrolysis or electrophoresis C25D, C25F)

NOTE In this class, the following expression is used with the meaning indicated:

- "metallic material" covers:
  a. metals;
  b. alloys (attention is drawn to the Note following the title of subclass C22C):
    alloys containing at least 50% by weight of one or more of borides, carbides, nitrides, oxides or silicides and binding metal;
    non-ferrous alloys containing at least 5% by weight but less than 50% by weight of borides, carbides, nitrides, oxides or
silicides of refractory metals, whether added as such or formed in situ.

Project: N/A (C23C)

U C23C 4/00  Coating by spraying the coating material in the molten state, e.g. by flame, plasma or electric discharge (spraying guns B05B; making alloys containing fibres or filaments by thermal spraying of metal C22C 47/16; plasma guns H05H)

U C23C 4/04  · characterised by the coating material
C23C 4/06  · · Metallic material (e.g. mixture of metallic alloys and hard particles like SiC and WC (C23C 4/085 takes precedence))

U C23C 14/00  Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material (discharge tubes with provision for introducing objects or material to be exposed to the discharge H01J 37/00)

U C23C 14/22  · characterised by the process of coating
U C23C 14/34  · · Sputtering
C23C 14/35  · · · by application of a magnetic field, e.g. magnetron sputtering ((C23C 14/3457 takes precedence))

U C23C 16/00  Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition (CVD) processes (reactive sputtering or vacuum evaporation C23C 14/00)

U C23C 16/22  · characterised by the deposition of inorganic material, other than metallic material
U C23C 16/30  · · Deposition of compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides
C23C 16/34  · · · Nitrides ((C23C 16/303 takes precedence))
U C23C 16/44  · characterised by the method of coating (C23C 16/04 takes precedence)
C23C 16/50  · · using electric discharges ((generation and control of plasma in discharge tubes for surface treatment H01J 37/32, H01J 37/34))

U C23C 18/00  Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating (chemical surface reaction C23C 8/00, C23C 22/00); Contact plating

NOTE
This groups covers also suspensions containing reactive liquids and non-reactive solid particles.

U C23C 18/16  · by reduction or substitution, e.g. electroless plating (C23C 18/54 takes precedence)
U C23C 18/18  · · Pre-treatment of the material to be coated
U C23C 18/20  · · · of organic surfaces, e.g. resins
C23C 18/28  · · · · Sensitising or activating ((not used, see subgroups))

Project: N/A (C23D)

C23D 5/00  Coating with enamels or vitreous layers ((including applying fused refractory layers C23C 4/10, C23C 24/10))
Electrolytic coating by surface reaction, i.e. forming conversion layers


Processes for servicing or operating cells for electrolytic coating

- Removal of gases or vapours (e.g. gas or pressure control (electroplating characterized by the use of gases (C25D 5/003))
- Filtering (particles other than ions (filtering ions (C25D 21/22))

Carbonising rags, threads or fabrics to recover animal fibres, i.e. chemical removal of vegetable impurities (treatment of threads or fabrics of animal fibres for other purposes than removal of vegetable impurities (D06L or D06M))

Spinning or twisting machines in which the product is wound-up continuously (open-end spinning machines (D01H 4/00); doubling of yarns (B65H 54/00 + T); doubled, plied or cabled threads (D02G 3/28), e.g. using hollow spindles (D02G 3/283); spin-twisting (D02G 3/281); threads with alternately "S" and "Z" direction of twist, e.g. self-twist process, (D02G 3/286); wrapping strands of filaments or staple fibres by a binder yarn (D02G 3/38))

- Details (drafting arrangements (D01H 5/00); twisting arrangements (D01H 7/00))
- Driving or stopping arrangements (for open-end spinning machines (D01H 4/12, D01H 4/20, D01H 4/42); safety devices (D01H 13/14))
- for complete machines
- with two or more speeds; with variable-speed arrangements e.g. variation of machine speed according to growing bobbin diameter (responsive to reduction in material tension (D01H 13/16))

Drafting machines or arrangements (Threading of roving into drafting machine)(arrangements in which draft is dependent on linear movement of take-up spindles, e.g. in mules, (D01H 3/00); devices for combing or orienting fibres for open-end spinning machines (D01H 4/30); increasing the strength of a roving or sliver by false-twisting (D01H 7/92), during drafting (D01H 5/28), after drafting and before spinning according to groups (D01H 1/02 to D01H 1/08, D01H 7/90; depositing materials in cans after drafting (B65H 54/76 + T))

- Drafting machines or arrangements without fallers or like pinned bars
- Arrangements maintaining drafting elements free of fibre accumulations

Suction devices (exclusively; (D01H 5/625 and D01H 5/645 take precedence; in cooperation with thread breakage detecting means (D01H 13/16)))

Spinning or twisting arrangements (for open-end spinning (D01H 4/00))

- for imparting transient twist (i.e. false twist (D01H 1/11 takes precedence))

Arrangements for replacing or removing bobbins, cores, receptacles, or completed packages at paying-out or take-up stations (arrangements of general interest in the winding of filamentary material (B65H 67/00)){ Combination of spinning-winding machine}
for supplying bobbins, cores, receptacles, or completed packages to, or transporting from, paying-out or take-up stations (D01H 9/10 takes precedence); {Arrangements to prevent unwinding of roving from roving bobbins (transporting full yarn bobbins to subsequent machines B65H 67/06+T)}

Other common constructional features, details or accessories (for open-end spinning D01H 4/00)

Heating or cooling arrangements {for yarns (removal of heat from machines D01H 1/16)}

Piecing arrangements (for open-end spinning machines D01H 4/48; in machines for producing textile fabrics, see the appropriate subclasses); {Automatic end-finding, e.g. by suction and reverse package rotation; Devices for temporarily storing yarn during piecing (piecing of rovings in combination with replacing of completed packages or cans D01H 9/005)}

Yarns or threads, e.g. fancy yarns; Processes or apparatus for the production thereof, not otherwise provided for (for producing crimped or curled yarns D02G 1/00)

Yarns or threads characterised by constructional features, {e.g. blending, filament/fibre (piecing of yarns or threads D01H 15/00)}

Details of, or auxiliary devices incorporated in, weft knitting machines, restricted to machines of this kind (details or auxiliary devices not so restricted D04B 35/00)

Devices for determining or controlling patterns; {Programme-control arrangements}

characterised by the knitting instruments used

Pattern drums {{(driving-gear therefor D04B 15/665)}

Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres

from fleeces or layers composed of fibres having existing or potential cohesive properties, e.g. natural fibres, prestretched or fibrillated artificial fibres (felting apparatus D04H 17/00)

and hardened by felting; Felts or felted products

Three-dimensional articles formed by felting processes {{(formed by other consolidation processes D04H 1/005)}

characterised by the method of forming fleeces or layers, e.g. reorientation of fibres

Groups D04H 1/72 to D04H 1/76 are not complete pending a reorganisation. See also group D04H 1/72

the fibres being randomly arranged

by electro-spinning {{(Electro-spinning methods and apparatus D01D 5/0007)}}

Non-woven fabrics formed wholly or mainly of yarns or like filamentary material of substantial length
· characterised by the method of forming fleeces or layers, e.g. reorientation of yarns or filaments
· in another pattern, e.g. zig-zag, sinusoidal ((D04H 3/04 takes precedence))

**NOTES**
1. In each of the groups D06M 11/00 to D06M 15/00, in the absence of an indication to the contrary, a substance is classified in the last appropriate place.
2. Within each one of main groups D06M 11/00 to D06M 15/00, a mixture of substances is classified at least according to the essential ingredient. If more than one ingredient is essential, the mixture is classified, in the absence of an indication to the contrary, according to the essential ingredient which belongs to the last appropriate place in the sequence of substances;
3. Treatment by mixtures of substances covered by two or more of main groups D06M 11/00 to D06M 15/00 is classified in each appropriate main group.
4. In this subclass, the treatment of textiles, not provided for for elsewhere in class D06, is classified according to the following principles:
   • Treatment of textiles characterised by the treating agent in groups D06M 11/00 to D06M 16/00;
   • Treatment of textiles characterised by the process in group D06M 23/00.

**Project: N/A (D06P)**

**U D06P 3/00** Special processes of dyeing or printing textiles, or dyeing leather, furs, or solid macromolecular substances in any form, classified according to the material treated

**U D06P 3/82** textiles which contain different kinds of fibres
**D06P 3/854** containing modified or unmodified fibres, (i.e. containing the same type of fibres having different characteristics, e.g. twisted and not-twisted fibres (reserve dyeing D06P 5/12))

**Project: N/A (D07B)**

**D07B 2801/00** Linked indexing codes associated with indexing codes or classes of D07B (not used)

**NOTE**
The following indexing codes are applied as linked indexing codes associated to other indexing codes or classes of D07B, with the following restrictions:
   • D07B 2801/10, D07B 2801/14, D07B 2801/22 are only to be used as linked indexing codes with D07B 2205/00 and lower hierarchy
   • D07B 2801/12 and D07B 2801/24 are only to be used as linked indexing codes with D07B 2205/00 and lower hierarchy or D07B 2201/2047 and lower hierarchy
   • D07B 2801/60 and D07B 2801/62 are only to be used as linked indexing codes with D07B 2207/404 and lower hierarchy
   • D07B 2801/90 is only used as linked indexing code with any class or indexing code of D07B and defines that the classified feature belongs to the general knowledge.
After-treatment of cellulose pulp, e.g. of wood pulp, or cotton linters; { Treatment of dilute or dewatered pulp or process improvement taking place after obtaining the raw cellulosic material and not provided for elsewhere (polysaccharides, derivatives thereof C08B; paper-making D12D to D12H) }

Removal of fats, resins, pitch or waxes; { Chemical or physical purification, i.e. refining, of crude cellulose by removing non-cellulosic contaminants, optionally combined with bleaching (fats, waxes C11B; natural resins C09F 1/00; hemicellulose C08B 37/14; purification by mechanical means D21D 5/00) }

Regeneration of pulp liquors {or effluent waste waters}

Treatment of pulp gases; Recovery of the heat content of the gases; { Treatment of gases arising from various sources in pulp and paper mills; Regeneration of gaseous SO₂, e.g. arising from liquors containing sulfur compounds }

Deodorisation {Elimination of malodorous compounds, e.g. sulfur compounds such as hydrogen sulfide and mercaptans, from gas streams (oxidation of liquors D21C 11/057; post-combustion of gases D21C 11/127) }

Combustion of pulp liquors

Wet combustion; {Treatment of pulp liquors without previous evaporation, by oxidation of the liquors remaining at least partially in the liquid phase, e.g. by application or pressure (oxidation of black, green or white liquors D21C 11/0057) }

Special paper or cardboard not otherwise provided for (duplicating or recording paper B41M)

Fungicidal, bactericidal, insecticidal, disinfecting, antiseptic, or corrosion-inhibiting paper {antistatic, antioxygenic paper (toilet paper A47K 10/16) }

Special paper or cardboard manufactured by dry method; { Apparatus or processes for forming webs by dry method from mainly short-fibre or particle material, e.g. paper pulp (making board from wood, e.g. lignocellulosic, particles or fibres B27N 1/00 and subgroups; making non-woven fabrics from textile fibres D04H 1/72; machines for forming diapers A61F 13/15585; lap-forming devices in preliminary treatment of fibres, e.g. for spinning D01G 25/00) }

Non-fibrous material added to the pulp, characterised by its constitution; Paper-impregnating material characterised by its constitution

- Mixtures of material (D21H 17/69 takes precedence) { Pulp or paper comprising several different materials not incorporated by special processes (D21H 23/10, D21H 23/70, D21H 23/76 take precedence) }

NOTE
In this group, it is desirable to classify the individual components of the mixtures using Combination Sets with symbols chosen from groups D21H 17/00 or D21H 21/00.
Design or layout of roads, e.g. for noise abatement, for gas absorption (design or layout of sports grounds A63C 19/00; design or layout of airfields B64F, (of helicopter landing stages E01F 3/00))

- (Design or lay-out of roads, e.g. street systems, cross-sections (E01C 1/005, E01C 1/007 take precedence; of footpaths, sidewalks, berms, hard shoulders or cycle tracks E01C 15/00); Design for noise abatement, e.g. sunken road (reducing transmission of structure-born noise E01C 3/06; arrangement of means for absorbing surfacings see the groups for the respective surfacings; other arrangements for absorbing or reflecting air transmitted road traffic noise, e.g. barriers E01F 8/00))

- Crossings, junctions or interconnections between roads on the same level (construction of traffic islands E01F 1/00)

Foundations for pavings (specially adapted for playgrounds or sports grounds E01C 13/02; foundations in general E02D)

- Foundations produced by soil stabilisation (soil stabilisation for road building in general E01C 7/36)

- Methods or arrangements for protecting foundations from destructive influence of moisture, frost or vibration (heating devices E01C 11/26; draining the subbase of roads E01F 5/00)

Pavings made of prefabricated single units (specially adapted for playgrounds or sports grounds E01C 13/04, for footpaths, sidewalks or cycle tracks E01C 15/00; making artificial stones C04B; building stones E04C; flooring E04F)

- Made of vegetable stems, e.g. straw, thatch (of wood E01C 5/14; made of textiles (of bituminous textile webs E01C 5/12; of linoleum E01C 5/20))

- Made of natural stones, e.g. sett stones (as inserts in binders or bound thereby into greater unity E01C 5/22)

- Made of bricks (of asphalt bricks E01C 5/12)

- Made of units with cement or like binders (with metal upper or under layers E01C 5/22)

- Prestressed reinforced units; Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings E01C 7/16)

- Made of rubber units (of units made from other material and having a rubber upper layer E01C 5/226)

Coherent pavings made in situ (specially adapted for playgrounds or sports grounds E01C 13/06; for footpaths, sidewalks or cycle tracks E01C 15/00)

- Made of road-metal and binders (E01C 7/36 takes precedence)

- Of road-metal and cement or like binders (cement or like binders, composition of mortars C04B)

- Concrete paving (from concrete prepared in situ E01C 7/12; small individual units from concrete cast in situ E01C 9/001; arrangement or construction of joints E01C 11/04; reinforcements E01C 11/18)

- Sliding coverings, underlayers or intermediate layers (isolating underlayers E01C 3/06; sliding layers between coverings of different materials E01C 7/34; isolating or separating intermediate layers; Transmission of shearing force in horizontal intermediate planes, e.g. by protrusions, by inlays (anchoring new concrete wearing layers on old concrete paving E01C 7/147))
E01C 7/16 · · · Prestressed concrete paving (prestressed coverings from prefabricated concrete units **E01C 5/10**; prestressed joint constructions **E01C 11/04**; prestressed reinforcements **E01C 11/20**)

E01C 7/18 · · of road-metal and bituminous binders ((for surface treatments except for penetration coverings, or for thin surface layers **E01C 7/353**; bituminous mixtures **C08L 95/00**))

E01C 7/26 · · · mixed with other materials, e.g. cement, rubber, leather, fibre (fibrous material reinforcements for bituminous paving **E01C 11/165**)

U E01C 7/32 · · of courses of different kind made in situ

**NOTE**
This group is limited to coverings consisting of layers with different binders, except for thin intermediate or surface layers, which are classified in group **E01C 7/35**

E01C 7/34 · · · made of several courses which are not bound to each other; (Separating means therefor, e.g. sliding layers (in or under concrete coverings **E01C 7/145**))

E01C 7/35 · · Toppings or surface dressings; Methods of mixing, impregnating, or spreading them (devices therefor **E01C 19/00**; mortar-macadam pavings **E01C 7/12**; bituminous penetration coverings **E01C 7/18**)

E01C 7/36 · · · by subjecting soil to stabilisation ((**E01C 7/06** takes precedence; foundations **E01C 3/04**; soil conditioning or soil stabilising materials **C09K 17/00**; soil stabilisation devices for road construction **E01C 21/00**))

U E01C 9/00 Special pavings (specially adapted for playgrounds or sports grounds **E01C 13/00**, for footpaths, sidewalks or cycle tracks **E01C 15/00**); Pavings for special parts of roads or airfields (pavement lights **E01C 17/00**; manhole or like covers or frames **E02D 29/14**)

E01C 9/001 · · (Paving elements formed in situ; Permanent shutterings therefor (removable shutterings **E01C 19/502**; moulding machines therefor **E01C 19/508**); Inlays or reinforcements which divide the cast material in a great number of individual units (reinforcement girders which do not break the cohesion of the covering material **E01C 11/16**, **E01C 11/185**))

E01C 11/00 Details of pavings (**E01C 1/005**, **E01C 5/003**, **E01C 5/005**, **E01C 7/145**, **E01C 7/185**, **E01C 7/325** take precedence))

E01C 11/02 · · Arrangement or construction of joints ((for pavings consisting of prefabricated units **E01C 5/00**); Methods of making joints ((machines therefor **E01C 23/02**, **E01C 23/09**; removable joint shutterings **E01C 23/021**); Packing for joints (sealing joints not restricted to road or airfield paving **E04B 1/68**)

E01C 11/04 · · · for cement concrete paving (**E01C 9/001** takes precedence))

E01C 11/08 · · · Packing of metal (**E01C 11/045** takes precedence)

E01C 11/10 · · · Packing of plastic or elastic materials, (e.g. wood, resin (**E01C 11/045** takes precedence))

E01C 11/12 · · · Packing of metal and plastic or elastic materials (**E01C 11/045** takes precedence)

E01C 11/14 · · · Dowel assembly; (Design or construction of reinforcements in the area of joints (coupling devices for prefabricated units **E01C 5/005**; combined with characteristic packings **E01C 11/08** to **E01C 11/12**; removable holders **E01C 23/045**))

U E01C 11/16 · · Reinforcements (as anchoring elements between layers **E01C 7/145**, **E01C 7/185**, **E01C 7/325**; for building in general **E04C**)

E01C 11/18 · · · for cement concrete pavings (**prefabricated reinforced units **E01C 5/08**))
E01C 11/20  · · · for prestressed concrete pavings ((from prefabricated concrete units, similar prestressed units E01C 5/10))

E01C 11/22  · Gutters; (Surface drainage of streets, roads or like traffic areas (for sports grounds E01C 13/00)); Kerbs (or like edging members (for sports grounds E01C 13/00))

E01C 11/24  · Methods or arrangements for preventing slipperiness or protecting against influences of the weather ((measures taken in connection with the foundation E01C 3/06); paving elements with anti-slip inlays E01C 5/22; aggregates resisting to grinding E01C 7/085, E01C 7/142, E01C 7/182; specially for surface layers E01C 7/35; reinforcements extending up to the surface E01C 11/16, E01C 11/18, E01C 11/185; drainage E01C 11/22; windscreens E01F 7/02; snow fences E01H 5/102; combating fog E01H 13/00))

E01C 11/26  · · Permanently installed heating or blowing devices ((specially for combating fog E01H); built-in melting devices for dislodged snow E01H 5/102; Mounting thereof)

U E01C 13/00  Pavings or foundations specially adapted for playgrounds or sports grounds; (Drainage, irrigation or heating of sports grounds) (general layout A63C 19/00)

E01C 13/02  · Foundations, e.g. with drainage or heating arrangements ((E01C 13/003, E01C 13/008, E01C 13/10 take precedence; drainage of soil E02B 11/00))

E01C 13/06  · Pavings made in situ, e.g. for sand grounds, clay courts E01C 13/003, (E01C 13/08, E01C 13/10 take precedence)

E01C 13/08  · Surfaces simulating grass; (Grass-grown sports grounds (grass-like surfaces for skiing E01C 13/12))

U E01C 13/10  · for artificial surfaces for outdoor or indoor practice of snow or ice sports (E01C 13/08 takes precedence; production of snow or ice for winter sports or similar recreational purposes F25C 3/00)

E01C 13/12  · · for snow sports, e.g. skiing or ski tow track (mechanical ski trails A63C 19/10)

U E01C 19/00  Machines, tools or auxiliary devices for preparing or distributing paving materials, for working the placed materials, or for forming, consolidating, or finishing the paving (surface stabilisation E01C 21/00; apparatus specially adapted for reconditioning or repairing paving E01C 23/00)

E01C 19/02  · for preparing the materials ((E01C 19/002, E01C 19/45, E01C 19/46, E01C 21/00, E01C 23/065 take precedence; producing hydraulic cement concrete in general B28C 5/00 to B28C 9/00))

E01C 19/10  · · Apparatus or plant for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins, (i.e. producing mixtures or coating aggregates otherwise than by penetrating or surface dressing); Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions ((E01C 19/08, E01C 19/21, E01C 21/00, E01C 23/065 take precedence))

E01C 19/1013  · · · (Plant characterised by the mode of operation or the construction of the mixing apparatus; Mixing apparatus; (E01C 19/1004, E01C 19/1054 take precedence))

U E01C 19/12  · for distributing granular or liquid materials ((E01C 19/002, E01C 19/45, E01C 19/46, E01C 19/48, E01C 23/03, E01C 23/065, E01C 23/07 take precedence; for filling joints or grooves E01C 23/02, E01C 23/09)

E01C 19/21  · · for simultaneously but separately applying liquid material and granular or pulverulent material, e.g. bitumen and grit, with or without spreading ((with rolling E01C 19/4813); for filling grooves and gritting the filling)
U E01C 19/22 for consolidating or finishing laid-down unset materials (E01C 19/002, E01C 19/48, E01C 21/00) E01C 23/02 (E01C 23/065) take precedence; apparatus for generating vibrations in general B06B.

U E01C 19/30 Tamping or vibrating apparatus other than rollers; Devices for ramming individual paving elements (E01C 19/41, E01C 19/43, E01C 19/4833, E01C 19/488, E01C 19/4886, E01C 19/52, E01C 21/00, ) E01C 23/02, E01C 23/04 take precedence; vibrated depositing devices E01C 19/12; tamping or vibrating rollers E01C 19/28; portable percussion tools B25D; tamping or vibrating soil E02D 3/046.

U E01C 19/34 Power-driven rammers or tampers, e.g. air-hammer impacted shoes for ramming stone-sett paving; Hand-actuated ramming or tamping machines, e.g. tampers with manually hoisted dropping weight.

E01C 19/38 with means specifically for generating vibrations, e.g. vibrating plate compactors, immersion vibrators (E01C 19/40, E01C 19/41 take precedence).

E01C 19/48 for laying-down the materials and consolidating them, or finishing the surface, e.g. slip forms therefor, forming kerbs or gutters in a continuous operation in situ (E01C 19/002, E01C 23/065 take precedence; devices for guiding or controlling the machines along a predetermined path E01C 19/004).

E01C 19/40 for laying-down the materials and consolidating them, or finishing the surface, e.g. slip forms therefor, forming kerbs or gutters in a continuous operation in situ (E01C 19/002, E01C 23/065 take precedence; devices for guiding or controlling the machines along a predetermined path E01C 19/004).

U E01C 21/00 Apparatus or processes for surface soil stabilisation for road building or like purposes, e.g. mixing local aggregate with binder (recycling in place or on the road involving soil stabilisation E01C 23/065; stabilising soil under existing surfacing E01C 23/10; soil-conditioning or soil-stabilising materials C09K 17/00; soil consolidation in general E02D 3/12).

E01C 21/02 Fusing, calcining, or burning soil in situ (improving soil by thermal means in general E02D 3/11; devices for heating foundation or paving E01C 23/14).

U E01C 23/00 Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions for in plant recycling of salvaged bituminous mixtures) E01C 19/10.

U E01C 23/02 Devices for making, treating or filling grooves or like channels in not-yet-hardened paving, e.g. for joints or markings (surface patterning E01C 19/43); Removable forms therefor (non-removable forms E01C 11/02); Devices for introducing inserts or removable insert-supports in not-yet-hardened paving (E01C 23/04 takes precedence; non-removable (joint) insert supports E01C 11/02).

E01C 23/021 Removable, e.g. reusable, forms for grooves or like channels (E01C 23/028 takes precedence; groove-forming members of groove-making apparatus E01C 23/025, E01C 23/026); Installing same prior to placing the paving (into laid paving E01C 23/026).

E01C 23/023 Removable joint-body supports (E01C 23/045 take precedence); Installing joint or like bodies, e.g. waterstops, prior to placing the paving (into laid paving E01C 23/026 takes precedence).

E01C 23/04 Devices for laying (inserting or positioning) reinforcing elements or dowel bars (with or without joint bodies (installing or inserting joint bodies per se E01C 23/023, E01C 23/026)); Removable support for reinforcing (or load transfer) elements (non-removable supports therefor E01C 11/02 E01C 11/16; side forms adapted to supporting reinforcement E01C 19/50); Devices, e.g. removable forms, for making essentially horizontal ducts in paving, e.g. for prestressed reinforcements.

U E01C 23/06 Devices or arrangements for working the finished surface (working freshly laid paving E01C 19/42 to E01C 19/44, E01C 23/02; mining picks E21C 35/18); Devices for repairing (or reconditioning) the surface of damaged paving; (Recycling in place or on the road).
for roughening or patterning; for removing (the surface down to a predetermined depth) high spots or material bonded to the surface, e.g. markings; (for maintaining earth roads, clay courts or like surfaces by means of surface working tools, e.g. scarifiers, levelling blades; (removing matter not bonded to the surface E01H 1/00; roughening or detaching ice E01H 5/12)

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Devices for marking-out, applying, or forming traffic or like markings on finished paving (E01C 23/14 takes precedence; inserting or forming in not-yet-hardened paving E01C 23/02, in recesses formed in fully-set paving E01C 23/09; marking-out playing courts or playgrounds A63C 19/06; applying liquids or other fluent materials to surfaces in general B05; road surface markings per se E01F 9/04; Protecting fresh markings (indicating fresh markings E01F 9/0128))

for forming markings in situ

by spraying (E01C 23/06 takes precedence)

Structural or constructional details of bridges

Piers (E01D 19/005 takes precedence; towers for suspension bridges E01D 19/14); Abutments (foundations E02D); (Protecting same against drifting ice (against colliding vehicles E01F 15/00))

Damp-proof or other insulating layers; Drainage arrangements or devices (Bridge deck surfacings (bridge decks per se E01D 19/125))

(Waterproofing of bridge decks; Other insulations for bridges, e.g. thermal insulation for buildings in general E04B 1/62; Bridge deck surfacings (road surfacings in general E01C))

Railings; Protectors against smoke or gases, e.g. of locomotives; Maintenance travellers; Fastening of pipes or cables to bridges (pipe-line bridges E01D 18/00); supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets, F16L 3/00)

(Parapets, railings (E01D 19/005 takes precedence; balustrades in general E04F 11/18); Guard barriers or road-bridges (in general E01F 15/00))

Construction of (station or like) platforms or refuge islands (or like islands in traffic areas, e.g. intersection or filling-station islands) (general arrangement (of filling stations B60S 5/02, of railway platforms B61B 1/02, of traffic-channelling island at intersections E01C 1/02)); Kerbs specially adapted for islands in traffic areas (specially adapted for guiding, marking or signalling E01F 9/0533, for illumination E01F 9/0536; lane separators diverting traffic past safety zones E01F 9/087))

Devices affording protection against snow, sand drifts, side-wind effects, snowslides, avalanches or falling rocks (permanently installed heating or blowing devices for roads E01C 11/26); Anti-dazzle arrangements (; Sight-screens for roads, e.g. to mask accident site (E01F 8/00 takes precedence))

Anti-dazzle arrangements (E01F 8/00 takes precedence); (Securing anti-dazzle means to crash-barriers (securing signs or supports therefor to crash-barriers E01F 9/03))
U E01F 8/00 Arrangements for absorbing or reflecting air-transmitted noise from road or railway traffic (ground installations for reducing aircraft noise B64F 1/26; general building constructions for absorbing or reflecting noise, noise absorption or reflection for buildings E04B 1/74)

E01F 8/02

- specially adapted for sustaining vegetation or for accommodating plants (receptacles for cultivation of plants A01G 9/02; securing slopes or inclines E02D 17/20; retaining or protecting walls E02D 29/02); [Embankment-type or crib-type noise barriers; Retaining walls specially adapted to absorb or reflect noise (building elements for planting walls E04C 1/395)]

U E01F 9/00 Arrangement of road signs or traffic signals (signals, signalling systems G08; signs, attachment thereof to supports G09F; Arrangements for enforcing caution, e.g. speed bumps)

U E01F 9/011

- Upright bodies, e.g. marker posts or bollards; Supports for road signs, {e.g. posts, frames, gantries}((E01F 9/045, E01F 9/0533, E01F 13/02 take precedence); posts or poles in general E04H 12/00; means for attaching signs to a supporting structure in general G09F 7/18)

E01F 9/012

- Free-standing, e.g. traffic cones, foldable or inflatable devices; {Portable supports for barriers E01F 13/02; Portable traffic signs or signals (specially adapted for fitting to raised kerbs E01F 9/0533, to portable barriers E01F 13/02, to crash barriers E01F 9/03; normal vehicle equipment portable emergency signal devices to be placed on way B60Q 7/00; portable traffic signalling devices, i.e. hand signals G08B 5/006)}

E01F 9/0126

- · [mounted on vehicles, e.g. for rapid change of station, as signal fitting of service vehicle (vehicle aspects B60P, B62D); Warning vehicles designed to move along with traveling road-maintenance, e.g. remotely controlled (mobile impact cushioning arrangements E01F 15/14)]

E01F 9/013

- · intended to be readily removable, e.g. for insertion into road-stud sockets (E01F 9/012 takes precedence); {Base members specially adapted therefor (E01F 9/018, E01F 13/026 take precedence)}

E01F 9/014

- · Storing, transporting, placing or retrieving portable devices, {e.g. road cones emplacing vehicles (vehicle aspects B60P, B62D; applying permanent markers, e.g. buttons E01C 23/18)}

E01F 9/018

- · specially adapted for breaking, disengaging, collapsing or permanent deformation upon deflection or displacement, e.g. upon vehicle impact; {replaceable couplings (E01F 9/0118, E01F 9/012, E01F 9/014, E01F 9/016, E01F 9/017 take precedence)}

E01F 9/019

- · Extensible, collapsible or pivotable, {e.g. telescopic} (E01F 9/017, E01F 9/018 take precedence); {Rectractable or otherwise movable to an underground position (E01F 9/093, E01F 13/046, E01F 13/085 take precedence; retractable traffic islands E01F 1/005)}

U E01F 9/04

- Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated (for redirecting vehicles E01F 15/00)

E01F 9/041

- · [Selection of materials for road surface marking, e.g. wheel-grip improving additives, reflecting particles (specially adapted for kerbs E01F 9/053, for playing grounds A63C 19/06; reflecting or signal paints C09D 5/004); Methods of forming, installing or applying markings in, on or to paving (E01F 9/047, E01F 9/053, E01F 9/06 take precedence; devices therefor E01C)]

U E01F 9/08

- · Traffic lines, {e.g. edge lines (flush kerbs or edge strips specially adapted for traffic guidance E01F 9/053); Methods of forming, installing or applying same in, on or to the road (devices therefor E01C 23/16); Traffic lane separators}
E01F 9/087  · · · Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing (e.g. low barriers for channelling traffic (E01F 9/093 takes precedence; insurmountable lane-separating barriers E01F 15/006, E01F 15/02))

E01F 9/093  · · · movable for repeated use at different locations (e.g. shiftable lines, line location transferable by selective illumination, retractable lane delineating posts (E01F 15/006 takes precedence; retractable posts E01F 9/019))

E01F 13/00  Arrangements for obstructing or restricting traffic, e.g. gates, barricades (for railway crossings B61L); {Preventing passage of vehicles of selected category or dimensions (E01F 13/12, E01F 13/126 take precedence)}

U E01F 15/00  Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact (arrangements for fastening signs or signals to safety barriers or the like E01F 9/03; for forcibly arresting vehicles E01F 13/00; {guard barriers on road-bridges E01D 19/103; fences in general E04H 17/00})

E01F 15/006  · (Lane control by movable lane separating barriers, e.g. shiftable barriers, retractable kerbs (E01F 15/12 takes precedence; by crossable lane separators E01F 9/093); Apparatus or barriers specially adapted therefor, e.g. wheeled barriers (wall-type modules E01F 15/08))

U E01F 15/02  · Continuous barriers extending along roads or between traffic lanes (crossable-lane separators (E01F 9/087))

E01F 15/04  · · essentially made of longitudinal beams or rigid strips (supported above ground at spaced points (E01F 15/10, E01F 15/12 take precedence))

Project: N/A (E01H)

U E01H 1/00  Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice E01H 5/00; cleaning tramway rails E01H 8/00; obstruction removers on vehicles B60R 19/00; in combination with application of bitumen or the like E01C 19/16; in combination with application of traffic line E01C 23/16; {Sweeping apparatus, particularly for lawns A01G 1/12; Removing undesirable matter from floors and similar surfaces A47L 5/00 to A47L 13/00})

U E01H 1/08  · Pneumatically dislodging or taking-up undesirable matter (or small objects) ((E01H 1/006 and E01H 1/005 take precedence);) suction cleaners in general A47L 5/00 to A47L 9/00; {sucking-off liquids or semi-liquids E01H 1/108}); Drying by heat only or by streams of gas (permanently-installed heating or blowing devices E01C 11/26; heating or drying for road- building or repairing E01C 23/14; {devices for melting snow or ice in situ E01H 5/10, E01H 8/08; for scorching undesirable vegetation E01H 11/00}); Cleaning by projecting abrasive particles (sand-blasting in general B24C; {roughening of road surfaces E01C 23/08; cleaning of road joints E01C 23/0906})

E01H 1/0809  · · (Loosening or dislodging by blowing (with steam E01H 1/10 combined with suction E01H 1/0863; removing snow by blowing E01H 5/106; removing fog by blowing E01H 13/00; cleaning rails by blowing E01H 8/105, E01H 8/125; cleaning joints in road construction by blowing E01C 23/0906); Drying by means of gas streams (by heat only E01H 1/08; combined with snow or ice melting E01H 5/10, E01H 5/106, E01H 5/108))

U E01H 1/0827  · · (Dislodging by suction; Mechanical dislodging-cleaning apparatus with independent or dependent exhaust, e.g. dislodging-sweeping machines with independent suction nozzles (combined with blowing E01H 1/0872); Mechanical loosening devices working under vacuum)
E01H 1/0836  · · · (Apparatus dislodging all of the dirt by suction (liquids or semi-liquids E01H 1/108; combined with loosening by blowing E01H 1/0863; for cleaning rails E01H 8/105, E01H 8/125; removing snow by suction E01H 5/106, E01H 8/08); Suction nozzles (independent suction nozzles in mechanical dislodging-cleaning devices E01H 1/0827; suction and blowing nozzles E01H 1/0863))

E01H 1/10  · Hydraulically loosening or dislodging undesirable matter (stationary flushing devices E01H 3/04); Raking or scraping apparatus (hand implements E01H 1/12); {Removing liquids or semi-liquids e.g., absorbing water, sliding-off mud (removing pneumatically E01H 1/08; steam-cleaning E01H 11/00))

E01H 1/105  · (Raking, scraping or other mechanical loosening devices, e.g. for caked dirt (loosening ice or hard snow E01H 5/12; working the road surface E01C 23/08); Apparatus for mechanically moving dirt on road surfaces, e.g. wipers for evacuating mud (wipers as accessories for road washing machines E01H 1/101; of devices for removing liquids or semi-liquids E01H 1/108; of snow scrapers for evacuating wet snow E01H 5/06; wipers for spreading bitumen or the like E01C 19/16, E01C 19/178)}

U E01H 5/00  Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice (by applying de-icing agents E01H 10/00; obstruction removers on vehicles B60R 19/00; sand, gravel or salt spreaders E01C 19/20)

E01H 5/12  · Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow (with or without clearing or removing (E01H 5/10 takes precedence); Roughening ice or hard snow by means of tools (by means of gritting materials E01H 10/00; roughening or breaking-up pavements E01C 23/08, E01C 23/12))

U E01H 8/00  Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails (E01H 1/00 to E01H 6/00 take precedence; { controlling vegetation E01H 11/00; removing ballast from rails or sleepers E01B 27/023; removing, cleaning the ballast itself E01B 27/04, E01B 27/06))

E01H 8/02  · Methods or apparatus for removing ice or snow from railway tracks, e.g. using snow-ploughs (Devices for dislodging snow or ice which are carried or propelled by tramway vehicles) (operating only on rails or flange grooves E01H 8/10); {Moving or removing ballast; (E01B 27/02, E01B 27/04 take precedence; removing snow or ice in general E01H 5/00))

E01H 8/04  · · essentially by non-driven elements {Clearing instruments, e.g. scraping blades, scoop plates (with oscillating or vibrating tools E01H 8/06; with heated instruments or combined with melting E01H 8/10; ballast ploughs E01B 27/025; track clearing devices B61F 19/06)}

E01H 8/06  · · essentially by driven tools {clearing instruments, e.g. rotary cutting tools or brushes (with heated instruments or combined with melting E01H 8/08; for spreading or redistributing ballast E01B 27/026)}

U E01H 8/10  Removing undesirable matter from rails, flange grooves, or the like (railway parts), e.g. removing ice from contact rails, removing mud from flange grooves (heating, blowing, or fluid-applying devices installed in the track E01B 19/00; built-in draining devices for rails E01B 21/02; removing ballast from rails E01B 27/04)

U E01H 8/12  · · specially adapted to grooved rails, flange-ways, or like (parts of the permanent way, e.g. level crossings or switches)

E01H 8/125  · · · (Pneumatically or hydraulically loosening, removing or dislodging undesirable matter, e.g. removing by blowing, suction or flushing (flushing devices incorporated in tramay tracks E01B 21/02); Loosening or removing by means of heat (built-in heating, blowing or liquid applying devices for switches E01B 7/24))
Equipment or apparatus for, or methods of, general hydraulic engineering, {e.g. protection of constructions against ice-strains (protection of offshore constructions against ice-loads **E02B 17/0021**; ice-structures as artificial islands **E02B 17/028**)}

Artificial water canals, { e.g. irrigation canals}(for water-power plants **E02B 9/02**; irrigation of soil **E02B 13/00**)

· Making or lining canals {((linings in general **E02B 13/02**; digging canals **E02F**)}

Cleaning or keeping clear the surface of open water; Apparatus therefor (construction of ships or other waterborne vessels **B63B**, e.g. vessels specially adapted for collecting pollution from open water **B63B 35/32**; in swimming or splash baths or pools **E04H 4/16**)

· Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials {((stopping water-borne material in artificial water canals **E02B 5/085**; stopping water-borne material at barrages or weirs **E02B 8/023**); other treatment of water, waste water or sewage **C02F**; materials for treating liquid pollutants; e.g. oil, gasoline, fat, **C09K 3/32**; (separation of oil in sewage conduits **E03F 5/16**))}

· · (Separating means for recovering oil floating on a surface of open water; **E02B 15/048** takes precedence (separation in general **B01D**))

Bulkheads, piles, or other structural elements specially adapted to foundation engineering (engineering elements in general **F16**)

· Piles (sheet piles, {i.e. elements shaped to mutually lock or mate}) **E02D 5/02**; {pile shoes **E02D 5/72**; foundations on piles **E02D 27/12**, **E02D 27/20**)

· Prefabricated piles

NOTE
Documents covered both by **E02D 5/26** to **E02D 5/32** and by one or several of the groups **E02D 5/48** to **E02D 5/64** are classified in all relevant groups unless specific priority rules to the contrary are given

· · made of steel {or other metals (**E02D 5/52** takes precedence)}

· Concrete or concrete-like piles cast in position; {Apparatus for making same (**E02D 5/50** takes precedence; moulds **E02D 5/665**; placing, removing moulds **E02D 7/00** to **E02D 11/00**; placing the concrete **E02D 15/04**))

· · Piles varying in construction along their length, {i.e. along the body between head and shoe, e.g. made of different materials along their length (**E02D 5/50**, **E02D 5/52** take precedence)}

Methods or apparatus for placing sheet pile bulkheads, piles, mouldpipes, or other moulds (for both placing and removing **E02D 11/00**; {accessories for coupling driver to piles or the like **E02D 13/10**; for trees or other plants **A01G 17/16**; placing posts **E04H 17/26**))

· Placing by driving {((**E02D 7/18** to **E02D 7/24** take precedence))

· Power-driven drivers {((tampers **E02D 3/061**))

· · with pressure-actuated hammer, {i.e. the pressure fluid acting directly on the hammer structure (**E02D 7/12** takes precedence; vibrating drivers **E02D 7/18**))

Keeping dry foundation sites or other areas in the ground (sheet piles or bulkheads **E02D 5/02**
Restraining of open water
- by coffer-dams (e.g. made of sheet piles (permanent sheet piling boxes E02D 27/30))

Foundations as substructures
- Foundations for special purposes (for paving of roads E01C 3/00)
- Submerged foundations, (i.e. submerged in open water (E02D 27/12 to E02D 27/24 take precedence))

Dredgers; Soil-shifting machines (for special purposes E02F 5/00; other machines or apparatus for mining E21C; tunnelling E21D)
- mechanically-driven
- with digging elements on an endless chain, (e.g. bucket-type chains (for digging trenches or ditches E02F 5/06; cutting machines for mining or quarrying E21C 25/22))
- with digging wheels turning round an axis, (e.g. bucket-type wheels (for digging trenches E02F 5/08; for laying cables underwater E02F 5/109; cutting machines E21C 25/00; methods or apparatus for making tunnels or galleries E21D 9/00))
- with digging tools mounted on a dipper- or bucket-arm, (i.e. there is either one arm or a pair of arms), e.g. dippers, buckets
- Component parts
- Cantilever beams (i.e. booms; e.g. manufacturing processes, forms, geometry or materials used for booms (for booms with cable suspension arrangements E02F 9/14 takes precedence)); Dipper-arms (e.g. manufacturing processes, forms, geometry or materials used for dipper-arms); Bucket-arms ((E02F 3/34 takes precedence))
- Dippers; Buckets (Grab device, e.g. manufacturing processes for buckets, form, geometry, material of buckets (devices to connect tools to arms or booms E02F 3/3604; teeth therefor E02F 9/28))
- with reciprocating digging or scraping elements moved by cables or hoisting ropes; (Drives or control devices therefor (E02F 3/205, E02F 3/905 take precedence))
- Devices to connect beams or arms to tractors or similar self-propelled machines, (e.g. drives therefor (Connection of beams or booms or arms to the frame per se E02F 3/38; connection of scraper bowls to the vehicle main body E02F 3/653; connecting devices for agriculture tractors A01B 59/06))
- Graders, bulldozers, or the like with scraper plates or ploughshare-like elements (soil-working A01B); Levelling (scarifying) devices ((street cleaning E01H; construction of roads E01C 19/00, E01C 23/00))
- Component parts
- Blades; Levelling (or scarifying) tools ((E02F 3/40 takes precedence))
- with arrangements acting by a sucking or forcing effect, e.g. suction dredgers (pumps in general F04)
- Component parts (e.g. arrangement or adaptation of pumps)
- Apparatus for separating stones from the dredged material, (i.e. separating or treating dredged material (screening plants mounted on dredger therefor E02F 7/06))
- Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups E02F 3/00 to E02F 7/00 (laying-out or take-up devices for trailing electric cables B66C)
E02F 9/14 · Booms (only for booms with cable suspension arrangements (for booms or manipulators with cable suspensions for suction pipes E02F 3/905 takes precedence; for booms per se E02F 3/38; E02F 3/34 for bucket-arms)); Cable suspensions

E02F 9/24 · Safety devices (e.g. for preventing overload (E02F 9/226 takes precedence))

E02F 9/28 · Small metalwork for digging elements, e.g. teeth (scraper bits (ploughs for agriculture A01B 15/00; teeth of harrows A01B 23/02))

Project: N/A (E03D)

U E03D 1/00 Water flushing devices with cisterns; (Setting up a range of flushing devices or water-closets; Combinations of several flushing devices)

E03D 1/30 · Valves for high or low level cisterns; Their arrangement (inlet valves, valves in general F16K)(Flushing mechanisms in the cistern, optionally with provisions for a pre- or a post- flushing and for cutting off the flushing mechanism in case of leakage (flushing valves E03D 1/142, E03D 1/186, E03D 1/266, E03D 1/286))

E03D 9/00 Sanitary or other accessories for lavatories (hand tools for cleaning the toilets bowl A47K 11/10; seats or covers for closets A47K 13/00; body supports, other than seats for closets A47K 17/02; devices for preventing contamination of drinking-water pipes E03C 1/10)(Devices for cleaning or desinfecting the toilet room or the toilet bowl; Devices for eliminating smells (cleaning, desinfecting or deodorising the seat A47K 13/30))

U E03D 11/00 Other component parts of water-closets (pipe-joints or couplings in general F16L)(e.g. noise-reducing means in the flushing system (noise-reducing means in combination with flushing valves E03D 9/14), flushing pipes mounted in the bowl, seals for the bowl outlet, devices preventing overflow of the bowl contents; devices forming a water seal in the bowl after flushing, devices eliminating obstructions in the bowl outlet or preventing backflow of water and excrements from the waterpipe)

E03D 11/02 · Water-closet bowls (auxiliary chambers with connections to flushing water for bowl-cleaning utensils E03D 9/06; modified for using upwardly-directed sprays E03D 9/08; seats or covers A47K 13/00)(Bowls with a double odour seal optionally with provisions for a good siphonic action; siphons as part of the bowl (parts or details of bowls E03D 11/13))

Project: N/A (E04B)

U E04B 2/00 Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls (connections for building structures in general E04B 1/38; insulation for buildings in general E04B 1/62; building elements of relatively thin form for parts of buildings E04C 2/00)

U E04B 2/74 · Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels E04C 2/38)(modular coordination)

U E04B 2/76 · with framework or posts of metal (f(details of connections, thresholds or skirtings E04B 2/82))

E04B 2/78 · · · characterised by special cross-section of the frame-members (as far as important for securing wall panels to a framework with or without the help of cover-strips (separate connecting means, e.g. clip E04B 2/74; connections between uprights and cross-members E04B 2/76))

U E04B 5/00 Floors; Floor construction with regard to insulation; Connections specially adapted therefor (elements for floors, e.g. bricks, stones, filling bodies, girders, E04C; flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers E04F 15/00)
U E04B 5/02  · Load-carrying floor structures formed substantially of prefabricated units (E04B 5/43 to E04B 5/48 take precedence)

E04B 5/12  · with wooden beams (E04B 5/14 takes precedence){also means for supporting beams; (shores or struts E04G 25/00)}

Project: N/A (E04C)

U E04C 2/00  Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels (materials or manufacture, see the relevant subclasses, e.g. B27N, D21J; made in situ E04B; specially designed for insulation or other protection E04B 1/62; load-carrying floor structures E04B 5/02, E04B 5/16; roofs consisting of self-supporting slabs E04B 7/20; roof or like covering elements E04D 3/00; for lining or finishing E04F 13/00)

U E04C 2/30  · characterised by the shape or structure (translucent E04C 2/54)

E04C 2/40  · composed of a number of smaller components rigidly or movably connected together, e.g. interlocking, hingedly connected {of particular shape, e.g. not rectangular of variable shape or size, e.g. flexible or telescopic panels (E04C 2/041 takes precedence)}

Project: N/A (E04D)

U E04D 13/00  Special arrangements or devices in connection with roof coverings; {Protection against birds}; Roof drainage; {Sky-lights}(ventilation tiles E04D 1/30; ventilation slabs E04D 3/40; internal channels E04F 17/00; elements therefor, see the relevant groups)

E04D 13/15  · Trimming strips; Edge strips; Fascias; {Expansion joints for roofs (wall copings E04D 3/405; drainage borders E04D 13/0459; joints in general E04B 1/68})

E04D 13/152  · with ventilating means {in soffits or fascias; (on the eaves of the roof E04D 13/178)}

Project: N/A (E04F)

U E04F 10/00  Sunshades, {e.g. Florentine blinds or jalousies; Outside screens (E06B 9/26 takes precedence)}; Awnings {or baldachins (for caravans B60P 3/343)}; (trailer awnings E04H 15/08; for tents E04H 15/58)

U E04F 10/08  · of a plurality of similar rigid parts, e.g. slabs, lamellae ((E04F 10/005 takes precedence))

E04F 10/10  · collapsible {or extensible; metallic Florentine blinds; awnings with movable parts such as louvres; (shutters E06B 9/04; louvre windows E06B 7/08})

U E04F 13/00  Coverings or linings, e.g. for walls or ceilings (flooring E04F 15/00; decoration of surfaces, mosaic work B44, e.g. paper-hanging B44C 7/00; made of webs, e.g. of fabrics or wallpaper, { as such, or their manufacturing}D03D, D04G, D04H, D06N, D21H; construction of { false} ceilings E04B 9/00; roofings or similar water-tight coverings against precipitation E04D)

U E04F 13/07  · composed of covering or lining elements; Sub-structures therefor; Fastening means therefor

U E04F 13/08  · composed of a plurality of similar covering or lining elements, (E04F 13/072 takes precedence; borders, skirtings E04F 19/02; { of webs or fabrics E04F 13/002; fixing strips E04F 19/06; separate provisional spacers between adjacent tiles E04F 21/0092; implements or means for setting tiles E04F 21/18})

E04F 13/10  · · · of wood { or with an outer layer of wood (E04F 13/0864 takes precedence)}
E04F 13/12 · · · of metal { or with an outer layer of metal or enameled metal (E04F 13/0864 takes precedence)}
E04F 13/14 · · · stone or stone-like materials, e.g. ceramics { concrete,}; of glass { or with an outer layer of stone or stone-like materials or glass (E04F 13/0864 takes precedence); producing shaped elements from concrete, ceramic compositions or other stone-like materials B28B; prefabricated panels in general E04C 2/00})
E04F 13/15 · · · characterised by the use of glass elements { , i.e. wherein an outer layer is not of glass (E04F 13/145 takes precedence)}
E04F 13/16 · · · of fibres or chips, e.g. bonded with synthetic resins {, or with an outer layer of fibres or chips (E04F 13/0864 takes precedence)}
E04F 13/18 · · · of organic plastics with or without reinforcements or filling materials (of plastic-bound fibres or chips E04F 13/16){ or with an outer layer of organic plastics with or without reinforcements or filling materials; plastic tiles (E04F 13/0864 takes precedence)}

U E04F 15/00 Flooring (stair treads E04F 11/104; coverings not specially adapted for floors E04F 13/00; borders, skirtings E04F 19/02; { implements for laying flooring E04F 21/20; } gratings for cleaning soles of footwear A47L 23/24; { built-in gratings E04F 19/10; removing floor coverings E04G 23/00; carpets A47G 27/00;} of similar materials to roads E01C; basic or rough floors { , structural floors} E04B 5/00)
U E04F 19/00 Other details of constructional parts for finishing work on buildings (ladders, e.g. climbing irons, E06C 9/04)
U E04F 19/02 · Borders; Finishing strips, e.g. beadings; Light coves (for protecting edges of plaster E04F 13/06)
E04F 19/06 · · specially designed for securing panels {or masking the edges of wall- or floor-covering elements (E04F 19/022, E04F 19/026 and E04F 19/04 take precedence)}

U E04F 21/00 Implements for finishing work on buildings (for working or treating building elements of stone or stone-like material B28D; designed specifically for special details provided for in the other groups of this subclass, see the relevant groups for the details { working measures on existing buildings E04G 23/00; measuring angles or linear dimensions in general G01B, G01C; measuring inclination, e.g. by clinometers or levels G01C 9/00; reference lines, planes or sectors, generated by active optical means G01C 15/004})
U E04F 21/20 · for laying flooring (made of similar material to roads or pavements E01C; { arrangements for removing of previously fixed floor covering E04G 23/00})
E04F 21/22 · · of single elements, e.g. flooring cramps; {flexible webs (cutting tiles B28D 1/225)}

Project: N/A (E04G)
U E04G 11/00 Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs { (for prefabrication of concrete elements in a plant B28B 7/00)}
E04G 11/36 · for floors, ceilings, or roofs of plane or curved surfaces { end form panels for floor shutterings (floors with lost forms E04B 5/32)}
Falsework, forms, or shutterings for particular parts of buildings, e.g. stairs, steps, cornices, balconies { foundations, sills (E04G 11/365 takes precedence; flat foundations e.g. with lost forms E02D 27/01; removable forms or shutterings for road-building purposes E01C 19/50)}

Forms or shutterings for making openings, cavities, slits, or channels (forming part of shuttering for walls E04G 11/06, { e.g. double walls E04G 11/18; prefabricated elements with elements wholly or partly embedded therein B28B 23/00; core or mandrels for the prefabrication of concrete elements B28B 7/28})

Cores for anchor holes or the like { around anchors embedded in the concrete (means in or on the building element for connecting to handling apparatus E04G 21/142)}

Connecting or other auxiliary members for forms, falsework structure, or shutterings

Connecting or fastening means for metallic forming or stiffening elements, {e.g. for connecting metallic elements to non-metallic elements (E04G 17/001 takes precedence)}

Tying means; Spacers; { Devices for extracting or inserting wall ties (E04G 17/047 takes precedence; permanent forms for walls e.g. with ties E04B 2/86)}

Conveying or working-up concrete or similar masses able to be heaped or cast (in connection with finishing work E04F; construction and surfacing of floorings made of similar material to roads or pavements E01C; in connection with barrages E02B 7/00; in connection with foundations E02D 15/00; composition of concrete C04B; working concrete in general, e.g. mixing machines B28C)

Solidifying concrete, e.g. by application of vacuum before hardening (devices for solidifying also soil E02D 3/02; for road building E01C 19/00; { for producing shaped articles B28B 1/00})

Internal vibrators, {e.g. needle vibrators (combined with vacuum E04G 21/061)}

Buildings for parking cars, rolling stock, aircraft, vessels or like vehicles, e.g. garages (tents for use as garages E04H 15/00; bicycle stands B62H; storing of vessels on land B63C 15/00; construction of ground-supported surfaces E01C; marking of parking areas on the ground E01F 9/00; building construction in general E04B 1/00)

Garages for many vehicles

with mechanical means for shifting or lifting vehicles

with means for transport in vertical direction only or independently in vertical and horizontal directions (E04H 6/14 takes precedence)

Characterised by the use of movable platforms for horizontal transport, {i.e. cars being permanently parked on palettes (E04H 6/20 takes precedence)}

Characterised by the use of dollies for horizontal transport, {i.e. cars being permanently parked on wheeled platforms (E04H 6/20 takes precedence)}
Project: N/A (E05B)

U E05B 15/00 Other details of locks; Parts for engagement by bolts of fastening devices (fastening devices for wings other than locks or associated with locks E05C)

E05B 15/02
- Striking-plates; Keepers; Bolt staples; Escutcheons {(keyhole finders E05B 15/08; escutcheons made of hard materials E05B 15/1614; finger-plates E06B 7/285)}

U E05B 19/00 Keys; Accessories therefor (making keys, see the relevant places e.g. B21D 53/42; or B23P 15/005); milling grooves in keys B23C 3/35; { (E05B 11/005 takes precedence; illuminating devices E05B 17/103; key rings A44B 15/00; key cases A45C 11/32; key holders A47G 29/10)}

E05B 19/14
- Double (or multiple) keys, { e.g. with two or more bows or bits (see also E05B 35/14)}

U E05B 37/00 Permutation { or combination} locks { (handles with combination locks E05B 13/103; keyhole guards with combination locks E05B 17/145; alarms therefor E05B 45/061); electric permutation locks E05B 49/00; { for container closures B65D 55/145; combination switches H01H 27/10)}; Puzzle locks

E05B 37/16
- with two or more push or pull knobs, slides, or the like { (E05B 65/461 takes precedence)}

Project: N/A (E05C)

U E05C 17/00 Devices for holding wings open; Devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing; Braking devices, stops or buffers, combined therewith (combined with hinges E05D 11/00; combined with operating apparatus for wings E05F; other braking devices, stops, buffers E05F 5/00)

U E05C 17/02
- by mechanical means (E05C 17/60 takes precedence)

U E05C 17/04
- (Hinges for the movable bar (E05C 17/163, E05C 17/26, E05C 17/345 take precedence; hinges in general F16C 11/04, E05D))

U E05C 17/12
- consisting of a single rod

U E05C 17/20
- sliding through a guide (E05C 17/18 takes precedence)

E05C 17/22
- with braking, clamping or securing means in the guide { (E05C 17/203 takes precedence)}

Project: N/A (E05D)

E05D 3/00 Hinges with pins {(E05D 7/08 takes precedence)}

U E05D 7/00 Hinges or pivots of special construction (used for special suspension arrangements E05D 15/00; so as to be self-closing E05F 1/06, E05F 1/12; with means for raising wings before being turned E05F 7/02)

E05D 7/08
- for use in suspensions comprising two spigots placed at opposite edges of the wing, especially at the top and the bottom, e.g. trunnions { (E05D 15/266 takes precedence)}

E05D 7/12
- to allow easy detachment of the hinge from the wing or the frame { (E05D 15/507 takes precedence)}

E05D 11/00 Additional features or accessories of hinges {(edge protecting devices E06B 3/88)}

U E05D 15/00 Suspension arrangements for wings (arrangements of wings not characterised by the construction of the supporting means E06B 3/32)
for wings sliding vertically more or less in their own plane

- allowing an additional movement ((E05D 15/20 takes precedence))

- allowing alternative movements ((E05D 15/0604 takes precedence) ; for vertically-sliding wings E05D 15/22)

- for opening at either of two opposite edges ((hinges or pivots of special construction to allow easy separation or connection of the parts at the hinge axis E05D 7/10 ; to allow easy detachment of the hinge from the wing or the frame E05D 7/12))

- Safety devices ((E05D 15/5217 takes precedence))

- with successive different movements ((raising wings before being turned E05F 7/02))

Closers or openers for wings, not otherwise provided for in this subclass

- spring-actuated, (e.g. for horizontally sliding wings (counterbalancing sliding or lifting wings E05D; springs per se F16F, e.g. gas-springs F16F 9/00))

- for swinging wings, (e.g. counterbalance (spring-assisted actuation of lids or covers of refuse receptacles B65F 1/1623))

Safety transaction partitions, e.g movable pay-plates; [Bank drive-up windows] (non-safety paying counters, e.g. for supermarkets A47F 9/02; { secure depositories for food A47G 29/14; secure transfers between a building and a vehicle B60P 3/03})

Border constructions of openings in walls, floors, or ceilings; Frames to be rigidly mounted in such openings (E06B 5/00 takes precedence; features relating also to inner frames or wing frames, features relating solely to the mounting of inner frames E06B 3/00 ; corner joints or edge joints E06B 3/96)

- Base frames, i.e. template frames for openings in walls or the like, provided with means for securing a further rigidly-mounted frame; Special adaptations of frames to be fixed therein ((E06B 1/003, E06B 1/24 take precedence; fastening door or window frames per se E06B 1/56))

Window sashes, door leaves, or like elements for closing (wall or like)openings; Layout of fixed or moving closures, e.g. windows (in wall or like openings); Features of rigidly-mounted outer frames relating to the mounting of wing frames (E06B 5/00 takes precedence; shutters or the like E06B 9/00 ; glass panes C03)

- Wings made completely of glass ((E06B 3/4681 takes precedence))

- Wing frames not characterised by the manner of movement (features relating to the manner of movement E06B 3/32)

- Single frames

- Constructions depending on the use of specified materials (E06B 3/24 takes precedence)

- of metal

- of special cross-section ((not used, see subgroup and E06B 3/12))

- of plastics
E06B 3/22 · · · · Hollow frames (E06B 3/205 takes precedence)
E06B 3/30 · Coverings, e.g. protecting against weather, for decorative purposes (for door leaves E06B 3/7001)
E06B 3/32 · Arrangements of wings characterised by the manner of movement; Arrangements of movable wings in openings; Features of wings or frames relating solely to the manner of movement of the wing (fittings or supporting means, separable from the frame, for guiding or controlling the movement of wings, arrangements of wings characterised by particular forms of such means E05D)
U E06B 3/34 · · with only one kind of movement (E06B 3/48 takes precedence)
E06B 3/38 · · with a horizontal axis of rotation at the top or bottom of the opening (E06B 3/5036 takes precedence)
E06B 3/42 · · · Sliding wings; Details of frames with respect to guiding (E06B 3/26347 and E06B 3/92 take precedence)
E06B 3/46 · · · Horizontally-sliding wings (E06B 3/487 takes precedence)
E06B 3/66 · Units comprising two or more parallel glass or like panes permanently secured together (reforming and uniting glass sheets by fusing C03B 23/00; joining glass to glass or to other materials C03C 27/00; laminated glass B32B 17/10)
E06B 3/68 · Window bars (bay windows E06B 1/363; joints for frame members crossing each other E06B 3/9628)
U E06B 3/70 · Door leaves (wing frames E06B 3/04)
U E06B 3/72 · · consisting of frame and panels, e.g. of raised panel type (E06B 3/7001 to E06B 3/7015 and E06B 3/82 take precedence)
E06B 3/76 · · · with metal panels (E06B 3/721 to E06B 3/725 take precedence)
E06B 3/78 · · · with panels of plastics (E06B 3/721 to E06B 3/725 take precedence)
E06B 3/80 · · flexible (upwardly folding flexible screens E06B 9/262)
E06B 3/96 · Corner joints or edge joints for windows, doors, or the like frames or wings (E06B 3/663 takes precedence)
U E06B 3/964 · · using separate connection pieces, e.g. T-connection pieces (E06B 3/9604 to E06B 3/9636 and E06B 3/984 to E06B 3/99 take precedence)
U E06B 3/968 · · · characterised by the way the connecting pieces are fixed in or on the frame members
E06B 3/976 · · · by deformation of the frame members (making sheet metal frames for openings B21D 53/74)
E06B 5/00 Doors, windows, or like closures for special purposes (insulated compound frames specially adapted for sliding doors or windows E06B 3/26347); Border constructions therefor
U E06B 7/00 Special arrangements or measures in connection with doors or windows (arrangements against burglary at the edges of the wings E06B 5/113; screening or similar protective devices E06B 9/00)
U E06B 7/02 · for providing ventilation, e.g. through double windows; Arrangement of ventilation roses (airflow control members per se F24F 13/08)
E06B 7/08 · · Louvre doors, windows or grilles (shutters E06B 9/04; louver awnings E04F 10/08 to E04F 10/10)
E06B 7/28 · Other arrangements on doors or windows, e.g. door-plates, windows adapted to carry plants, hooks for window cleaners (edge protecting devices for door leaves E06B 3/88; special glazing; emergency glazing; double glazing E06B 3/66)
Project: N/A (E06B)

**E06B 9/00**

Screening or protective devices for {wall or similar} openings, with or without operating or securing mechanisms; Closures of similar construction (E06B 5/10 takes precedence; wings for doors or windows, connected at their edges, E06B 3/48; additional indoor equipment of doors or windows, not forming part of the proper finishing work of a building, e.g. curtains, A47H; gratings as building elements E04C 2/24; fastening means E05; operating-mechanisms for wings in general E05F)

- Grilles fixed to walls, doors, or windows; Grilles moving with doors or windows; Walls formed as grilles, e.g. claustra (emergency release of window grilles E05B 65/1033; security bars for wings E05C 19/003)
- Shutters, movable grilles, or other safety closing devices, e.g. against burglary (louvre windows or grilles E06B 7/08; lamellar blinds E06B 9/26)
- Screens or other constructions affording protection against light, especially against sunshine; Similar screens for privacy or appearance; (slat blinds) (operating, guiding or securing devices or arrangements for roll-type closures E06B 9/56; free-hanging flexible screens A47H 23/00)
- Devices or accessories for making or mounting lamellar blinds or parts thereof (cleaning of lamellar blinds A47L 4/00; joining plastics plates for making venetian blinds B29C 66/437)
- Screens or other constructions affording protection against sunlight, especially against sunshine; Similar screens for privacy or appearance; (slat blinds) (operating, guiding or securing devices or arrangements for roll-type closures E06B 9/56; free-hanging flexible screens A47H 23/00)
- Lamellar or like blinds, e.g. venetian blinds (for vehicles B60J 1/2088)
- Devices or accessories for making or mounting lamellar blinds or parts thereof (cleaning of lamellar blinds A47L 4/00; joining plastics plates for making venetian blinds B29C 66/437)
- Screens or other constructions affording protection against light, especially against sunshine; Similar screens for privacy or appearance; (slat blinds) (operating, guiding or securing devices or arrangements for roll-type closures E06B 9/56; free-hanging flexible screens A47H 23/00)

Project: N/A (E21B)

**E21B 29/00**

Cutting or destroying pipes, packers, plugs, or wire lines, located in boreholes or wells, e.g. cutting of damaged pipes, of windows (perforators E21B 43/11); Deforming of pipes in boreholes or wells; Reconditioning of well casings while in the ground (by enlarging drilled holes or counterboring E21B 7/28)

Project: N/A (E21D)

**E21D 9/00**

Tunnels or galleries, with or without linings; Methods or apparatus for making thereof (E02D 29/045, E02D 29/063 take precedence; linings per se E21D 11/00); Layout of tunnels or galleries

- Making by using a driving shield, i.e. advanced by pushing means bearing against the already placed lining (pushing prefabricated elements through the ground from an access pit E21D 9/005)

**E21D 11/00**

Lining tunnels, galleries or other underground cavities, e.g. large underground chambers; Linings therefor; Making such linings in situ, e.g. by assembling (E21D 15/00 to E21D 23/00 take precedence; specially for shafts E21D 5/00; (driving shields in combination with means for lining the tunnel E21D 9/06); lining pressure water galleries, linings therefor E02B 9/06)
U E21D 11/14  
• Lining predominantly with metal {(backfilling the space between the lining elements and the rock E21D 11/105)}

E21D 11/18  
• Arch members; {Network made of arch members (E21D 11/36 takes precedence); Ring elements; Polygon elements; Polygon elements inside arches (caps for arches E21D 17/00)}

Project: N/A (F)

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING ENGINES OR PUMPS

NOTE

Guide to the use of this subsection (classes F01 to F04)
The following notes are meant to assist in the use of this part of the classification scheme.

1. In this subsection, subclasses or groups designating "engines" or "pumps" cover methods of operating the same, unless otherwise specifically provided for.

2. In this subsection, the following terms or expressions are used with the meanings indicated:
   * "engine" means a device for continuously converting fluid energy into mechanical power. Thus this term includes, for example, steam piston engines or steam turbines, PER SE, or internal-combustion piston engines, but it excludes single-stroke devices. "Engine" also includes the fluid-motive portion of a meter unless such portion is particularly adapted for use in a meter;
   * "pump" means a device for continuously raising, forcing, compressing, or exhausting fluid by mechanical or other means; thus this term includes fans or blowers;
   * "machine" means a device which could equally be an engine and a pump, and not a device which is restricted to an engine or one which is restricted to a pump;
   * "positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, in which variations of volume created by the working fluid in a working chamber produce equivalent displacements of the mechanical member transmitting the energy, the dynamic effect of the fluid being of minor importance; and VICE-VERSA;
   * "non-positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, by transformation of the energy of the working fluid into kinetic energy; and VICE-VERSA;
   * "oscillating-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member oscillates. This definition applies also to engines and pumps;
   * "rotary-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member rotates about a fixed axis or about an axis moving along a circular or similar orbit. This definition applies also to engines and pumps;
   * "rotary piston" means the work-transmitting member of a rotary-piston machine and may be of any suitable form, e.g. like a toothed gear;
   * "co-operating members" means the "oscillating piston" or "rotary piston" and another member, e.g. the working-chamber wall, which assists in the driving or pumping action;
   * "movement of the co-operating members" is to be interpreted as relative, so that one of the "co-operating members" may be stationary, even though reference may be made to its rotational axis, or both may move;
   * "teeth or tooth-equivalents", include lobes, projections or abutments;
• "internal-axis type" means that the rotational axes of the inner and outer co-operating members remain at all times within the outer member, e.g. in a similar manner to that of a pinion meshing with the internal teeth of a ring gear;
• "free-piston" means a piston of which the length of stroke is not defined by any member driven thereby;
• "cylinders" means positive-displacement working chambers in general and thus this term is not restricted to cylinders of circular cross-section;
• "main shaft" means the shaft which converts reciprocating piston motion into rotary motion or VICE-VERSA;
• "plant" means an engine together with such additional apparatus as is necessary to run the engine. For example, a steam engine plant includes a steam engine and means for generating the steam;
• "working fluid" means the driven fluid in a pump and the driving fluid in an engine. The working fluid may be in a gaseous state, i.e. compressible, or liquid. In the former case coexistence of two states is possible;
• "steam" includes condensable vapours in general, and "special vapour" is used when steam is excluded;
• "reaction type" as applied to non-positive-displacement machines or engines means machines or engines in which pressure/velocity transformation takes place wholly or partly in the rotor; machines or engines with no, or only slight, pressure/velocity transformation in the rotor are called "impulse type".

3. In this subsection:
• cyclically operating valves, lubricating, gas-flow silencers or exhaust apparatus, or cooling should be classified in subclasses F01L, F01M, F01N, F01P irrespective of their stated application, unless their classifying features are peculiar to their application, in which case they should be classified only in the relevant subclass of classes F01 to F04;
• lubricating, gas-flow silencers or exhaust apparatus, or cooling of machines or engines should be classified in subclasses F01M, F01N, F01P except for those peculiar to steam engines which should be classified in subclass F01B.

4. For use of this subsection with a good understanding, it is essential to remember, so far as subclasses F01B, F01C, F01D, F03B, F04B, F04C and F04D , which form its skeleton, are concerned:
• the principle which resides in their elaboration
• the classifying characteristics which they call for, and
• their complementarity

i. Principle
This concerns essentially the subclasses listed above. Other subclasses, notably those of class F02, which cover better-defined matter, are not considered here. Each subclass covers fundamentally a genus of apparatus (engine or pump) and by extension covers equally "machines" of the same kind. Two different subjects, one having a more general character than the other, are thus covered by in the same subclass. Subclasses F01B, F03B, F04B, beyond the two subjects which they cover, have further a character of generality in relation to other subclasses concerning the different species of apparatus in the genus concerned. This generality applies as well for the two subjects dealt with, without these always being in relation to the same subclasses. Thus, subclass F03B, in its part dealing with "machines" should be considered as being the general class relating to subclasses F04B, F04C.
and in its part dealing with "engines" as being general in relation to subclass **F03C**.

### Characteristics

The principal classifying characteristic of the subclass is that of genera of apparatus, of which there are three possible:

- **Machines; engines; pumps.**

As stated above, "machines" are always associated with one of the other two genera. These main genera are subdivided according to the general principles of operation of the apparatus:

- **Positive displacement; non-positive displacement.**

The positive displacement apparatus are further subdivided according to the ways of putting into effect the principle of operation, that is, to the kind of apparatus:

- **Simple reciprocating piston; rotary or oscillating piston; other kind.**

Another classifying characteristic is that of the working fluid, in respect of which three kinds of apparatus are possible, namely:

- **Liquid and elastic fluid; elastic fluid; liquid.**

### Complementarity

This resides in association of pairs of the subclasses listed above, according to the characteristics under consideration in respect of kind of apparatus or working fluid.

The subclasses concerned with the various principles, characteristics and complementarity are shown in the following table:

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<thead>
<tr>
<th>Kind of positive displacement</th>
<th>non-positive displacement</th>
<th>Working fluid</th>
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<td>Relations of genera</td>
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### MACHINES

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### ENGINES
It is seen from the table that:
- For the same kind of apparatus in a given genus, the characteristic of "working fluid" associates:
  - F01B and F04B
  - F01C and F04C
  - F01D and F03B
  - F01B and F03C
  - F01C and F03C
  - F01D and F03B
- For the same kind of working fluid, the "apparatus" characteristic relates subclasses in the same way as considerations of relative generality.

**Project: N/A (F01B)**

**MACHINES OR ENGINES, IN GENERAL OR OF POSITIVE-DISPLACEMENT TYPE, e.g. STEAM ENGINES (of rotaty-piston or oscillating-piston type F01C; of non-positive-displacement type F01D; internal-combustion aspects of reciprocating-piston engines F02B 57/00, F02B 59/00; crankshafts, crossheads, connecting-rods F16C; flywheels F16F; gearings for interconverting rotary motion and reciprocating motion in general F16H; pistons, piston rods, cylinders, for engines in general F16J)**

**NOTES**

1. This subclass covers, with the exception of the matter provided for in subclasses F01C to F01P:
   - engines for elastic fluids, e.g. steam engines;
   - engines for liquids and elastic fluids;
   - machines for elastic fluids;
   - machines for liquids and elastic fluids.
2. Attention is drawn to the note preceding class F01, especially as regards the definitions of "steam" and "special vapour".

**Project: N/A (F01D)**

**U F01D 1/00**

Non-positive-displacement machines or engines, e.g. steam turbines (with working-fluid flows in opposite axial directions for balancing axial thrust F01D 3/02; with other than pure rotation F01D 23/00; turbines characterised by their use in special steam systems, cycles, or processes, regulating devices therefor F01K)

- with pressure velocity transformation exclusively in rotor, e.g. the rotor rotating under the influence of jets issuing from the rotor, (e.g. Heron turbines (the working fluid being a combustion products F02C 3/165; jet propulsion plants per se F02K))
Blades; Blade-carrying members (nozzle boxes F01D 9/02); Heating, heat-insulating, cooling or anti-vibration means on the blades or the members (special arrangements in rotors dealing with breaking off of part thereof F01D 21/045)

· Blades (specially adapted for radial flow machines or engines F01D 5/04); blade roots F01D 5/30; rotors with blades adjustable in operation F01D 7/00; stator blades F01D 9/02)

· Form or construction (selecting particular materials, measures against erosion or corrosion F01D 5/28)

· Hollow blades, i.e. blades with cooling or heating channels or cavities (structure of hollow blades in general F01D 5/147); Heating, heat-insulating or cooling means on blades

· Rotor-blade aggregates of unitary construction e.g. formed of sheet laminae; (discs formed of sheet laminae F01D 5/028; Ceramic materials F01D 5/284, composite materials F01D 5/282)

Stators (non-fluid guiding aspects of casings, regulating, controlling, or safety aspects, see the relevant groups)

· Nozzles; Nozzle boxes; Stator blades; Guide conduits (e.g. individual nozzles (nozzle boxes F01D 9/047)

Silencing apparatus characterised by method of silencing ((by cooling F01N 3/02; using liquids F01N 3/04))

· by adding air to exhaust gases ((in tailpipes F01N 13/082, F01N 13/20))

· by using movable parts

· having oscillating or vibrating movement ((the parts being resilient walls F01N 1/22))

Exhaust or silencing apparatus having means for purifying, rendering innocuous, or otherwise treating exhaust (electric control F01N 9/00; monitoring or diagnostic devices for exhaust-gas treatment apparatus F01N 11/00; { collecting or removing exhaust gases of vehicle engines in workshops B08B 15/00, on highways E01C 1/005})

· for cooling, or for removing solid constituents of, exhaust (by means of electric or electrostatic separators F01N 3/01; { mixing air with exhaust in tailpipes F01N 13/082, F01N 13/20})

· by means of filters

· in combination with other devices (with adsorbents or absorbents F01N 3/0821)

Monitoring or diagnostic devices for exhaust-gas treatment apparatus, e.g. for catalytic activity (safety, indicating or supervising devices for internal combustion engines F02B 77/08; testing of machines G01M 13/00)

Exhaust or silencing apparatus characterised by constructional features; { Exhaust or silencing apparatus, or parts thereof, having pertinent characteristics not provided for in, or of interest apart from, groups F01N 1/00 to F01N 5/00, F01N 9/00, F01N 11/00}

· Other arrangements or adaptations of exhaust conduits ((pipes, joints or supports therefor in general F16L; collecting or removing exhaust gases of vehicle engines in workshops B08B 15/00, on highways E01C 1/005))

· of exhaust manifolds (with cooling jacket F01N 3/046)

· having thermal insulation (exhaust manifolds F01N 13/102)
Project: N/A (F02B)

U F02B 25/00 Engines characterised by using fresh charge for scavenging cylinders (aspects characterised by provision of driven charging or scavenging pumps F02B 33/00 to F02B 39/00)

NOTE
- in this group the following indexing codes are used:
  F02B 2700/02 to F02B 2700/038

U F02B 25/14 · using reverse-flow scavenging, e.g. with both outlet and inlet ports arranged near bottom of piston stroke

U F02B 25/16 · the charge flowing upward essentially along cylinder wall opposite the inlet ports (F02B 25/145 takes precedence)

U F02B 25/18 · the charge flowing upward essentially along cylinder wall adjacent the inlet ports, e.g. by means of deflection rib on piston (F02B 25/145 takes precedence)

U F02B 37/00 Engines characterised by provision of pumps driven at least for part of the time by exhaust (characterised by the introduction of liquid fuel into cylinders by use of auxiliary fluid F02B 13/00; characterised by after-charging F02B 29/06; characterised by passages conducting the charge from the pump to the engine inlet F02B 33/44)

U F02B 37/12 · Control of the pumps

U F02B 37/16 · by bypassing charging air (bypassing air from the pump inlet, e.g. to the pump outlet F02B 37/127)

U F02B 37/20 · by increasing exhaust energy, e.g. using combustion chamber (by after-burning (using an auxiliary combustion chamber supplied by charging air F02B 37/166))

U F02B 37/22 · by varying cross-section of exhaust passages or air passages, e.g. by throttling turbine inlets or outlets or by varying effective number of guide conduits (F02B 37/24 takes precedence)

Project: N/A (F02C)

U F02C 3/00 Gas-turbine plants characterised by the use of combustion products as the working fluid (generated by intermittent combustion F02C 5/00)

U F02C 3/20 · using a special fuel, oxidant, or dilution fluid to generate the combustion products

U F02C 3/30 · Adding water, steam or other fluids for influencing combustion, e.g. to obtain cleaner exhaust gases (F02C 7/141, F02C 7/30, F01D 21/00, F01K 21/04, F23D 11/10 take precedence)

U F02C 7/00 Features, components parts, details or accessories, not provided for in, or of interest apart from groups F02C 1/00 to F02C 6/00: Air intakes for jet-propulsion plants (controlling F02C 9/00)

U F02C 7/12 · Cooling of plants (of component parts, see the relevant subclasses, e.g. F01D: cooling of engines in general F01P)

U F02C 7/14 · of fluids in the plant, e.g. lubricant or fuel (F02C 7/185 takes precedence)
Project: N/A (F02D)

**F02D 33/00**
Controlling delivery of fuel or combustion-air, not otherwise provided for
{(using exhaust gas sensors F02D 35/0023, F02D 35/0046)}

**U F02D 41/00**
Electrical control of supply of combustible mixture or its constituents
{(F02D 43/00 takes precedence)}

- Circuit arrangements for generating control signals
- · · Introducing corrections for particular operating conditions
  {(F02D 41/14 takes precedence)}
- · · · (Taking into account fuel evaporation or wall wetting;
  {special correction after fuel cut-off F02D 41/126})
- · · · for engine starting or warming up
  {(F02D 41/0255 takes precedence)}
- · · · for deceleration
  {(F02D 41/0005, F02D 41/107 take precedence)}
- · · Safety or indicating devices for abnormal conditions
  {(in air/fuel ratio feedback systems F02D 41/1495, in electric control linkage
  F02D 11/107, in purge control systems F02M 25/0809)}

**U F02D 41/30**
Controlling fuel injection
{(F02D 41/182, F02D 41/24 take precedence)}

- · · of the low pressure type
  {(F02D 41/3082 takes precedence)}

Project: N/A (F02F)

**F02F 5/00**
Piston rings, e.g. associated with piston crown
{(not used see F16J 9/00)}

Project: N/A (F02M)

**U F02M 35/00**
Combustion-air cleaners, air intakes, intake silencers, or induction systems
specially adapted for, or arranged on, internal-combustion engines
{air cleaners in general B01D}

- Air cleaners
- · · specially arranged with respect to engine, {to intake system or specially
  adapted to vehicle}; Mounting thereon; {Combinations with other devices
  (combined with silencers F02M 35/14)}
- · · with means for removing dust, {particles or liquids} from cleaners;
  with means for indicating clogging; with by-pass means; {Regeneration
  of cleaners}
- · · · Clogging indicators; {Diagnosis or testing of air cleaners
  (sensors therefore F02M 35/10373)}
- · · · Intake silencers
  {Sound modulation, transmission or amplification (intake silencers also used
  as exhaust silencer F01N 13/007; filters for compressors F04B 39/16)}
- · · · {combined with or integrated into other devices
  (F02M 35/14 takes precedence); Plurality of air intake silencers
  (F02M 35/1266 takes precedence)}

**U F02M 59/00**
Pumps specially adapted for fuel-injection and not provided for in groups
F02M 39/00 to F02M 57/00, {e.g. rotary cylinder-block type pumps} (general
features of pumps F04)

**NOTE**
- in this group the following indexing codes are used: F02M2700/07G,
  F02M2700/13E, F02M 2700/1323, F02M 2700/1341, F02M 2700/1352,
  F02M 2700/1388

- · of reciprocating-piston (or reciprocating-cylinder) type
characterised by special arrangement of cylinders with respect to piston-driving shaft, e.g. arranged parallel to that shaft (or swash-plate type pumps (with rotary valve F02M 59/362))

characterised by two or more pumping elements with conjoint outlet (or several pumping elements feeding one engine cylinder (feeding common rails F02M 63/0225))

Fuel-injectors not provided for in groups F02M 39/00 to F02M 57/00 or F02M 67/00

NOTE
- in this group the following indexing codes are used: F02M 2700/07, F02M2700/07B, F02M 2700/074

Details not provided for in, or of interest apart from, the apparatus of groups F02M 61/02 to F02M 61/14

Closing valves mechanically, e.g. arrangements of springs or weights (or permanent magnets; Damping of valve lift (F02M 61/205 takes precedence))

Low-pressure fuel-injection apparatus (electrically operated F02M 51/00); { Apparatus with both continuous and intermittent injection; Apparatus injecting different types of fuel}

NOTE
- in this group the following indexing codes are used: F02M2700/43C, F02B 2720/15

Arrangements of distributors, circuit-makers or -breakers, {e.g. of distributor and circuit-breaker combinations} or pick-up devices (advancing or retarding ignition or control therefor F02P 5/00; such devices per se, see the relevant classes of Section H, e.g. rotary switches H01H 19/00, contact-breakers, distributors H01R 39/00, generators H02K)

Arrangements of distributors, circuit-makers or -breakers, (e.g. of distributor and circuit-breaker combinations) or pick-up devices (advancing or retarding ignition or control therefor F02P 5/00; such devices per se, see the relevant classes of Section H, e.g. rotary switches H01H 19/00, contact-breakers, distributors H01R 39/00, generators H02K)

Sparking plugs structurally combined with other parts of internal-combustion engines {{connection of ignition coil to spark plug connector F02P 3/02}; with fuel injectors F02M 57/06; {spark plug connectors per se H01T 13/04 to H01T 13/06; predominant aspects of sparking plug, see H01T 13/40 to H01T 13/44}; predominant aspects of the parts, see the relevant subclasses)

Electric spark ignition having characteristics not provided for in, or of interest apart from, groups F02P 1/00 to F02P 13/00 (and combined with layout of ignition circuits (not combined F02B, F02C, F02G, F02K))

{Ignition installations adapted to specific engine types (ignition of jet propulsion plants F02K 9/95; for rotary piston engines F02B 53/12)}

{Layout of ignition circuits for gas turbine plants (ignition of gas turbine plants per se F02C 7/26)}

{Layout of ignition circuits for rotary- or oscillating piston engines (ignition of those engines per se F02B 53/12)}
Adaptations of machines or engines for special use; Combinations of machines or engines with driving or driven apparatus (if the apparatus aspects are predominant, see the relevant subclasses for such apparatus, e.g. \texttt{H02K 7/18}); Power stations or aggregates (incorporating only machines or engines of positive-displacement type \texttt{F03C}; hydraulic engineering aspects \texttt{E02B}; (combinations with wind energy converters \texttt{F03D 9/008}))

- Machine or engine aggregates in dams or the like; Conduits therefor, (e.g. diffusors (bulb groups \texttt{F03B 13/105})

Other machines or engines

- Installations wherein the liquid circulates in a closed loop (\texttt{F03B 13/06} takes precedence); Alleged perpetua mobilia of this or similar kind (perpetua mobilia using hydrostatic thrust or buoyancy \texttt{F03B 17/04})

- using liquid flow (with predominantly kinetic energy conversion), e.g. of swinging-flap type, (“run-of-river”, “ultra-low head” (\texttt{F03B 13/264} takes precedence))

Wind motors with rotation axis substantially in wind direction (controlling \texttt{F03D 7/00})

- Assembly thereof (fixing wind engaging part to rotor \texttt{F03D 1/0658}); Erecting methods; Equipments therefor (foundations \texttt{F03D 11/045})

Pumps with circumferential or transverse flow (\texttt{F04D 5/00})

- Combinations of two or more pumps (combinations with priming pumps or booster pumps to counteract vapour-lock \texttt{F04D 9/04})

- the pumps being all of centrifugal type (\texttt{F04D 17/06})

- Multi-stage pumps

- characterised by use of centrifugal force of liquids entrained in pumps (e.g. by means of an auxiliary liquid; fluid ring compressors \texttt{F04C 19/00})

Centrifugal pumps

- for compressing or evacuating

- Multi-stage pumps

- with means for changing the flow-path through the stages, e.g. series-parallel, e.g. side-loads, (surge control \texttt{F04D 27/02})

- characterised by use of centrifugal force of liquids entrained in pumps (e.g. by means of an auxiliary liquid; fluid ring compressors \texttt{F04C 19/00})

- Pumping installations or systems (controlling \texttt{F04D 15/00})

- Pumping installations or systems (controlling \texttt{F04D 27/00})

- Units comprising pumps and their driving means (predominant aspect of the driving means, see the relevant classes for such means)

- the pump being fluid-driven (pumps driven by exhaust gases \texttt{F02B 37/00}, \texttt{F02B 39/00}; turbochargers \texttt{F02C 6/12})

Control, e.g. regulation, of pumps, pumping installations or systems

WARNING

This group is not complete pending a reorganisation. See also group \texttt{F04D 27/02} which covers also control in general not focussing on surge control
F04D 27/02
· Surge control (surge detection F04D 27/001)

U F04D 29/00
Details, component parts, or accessories (machine elements in general F16)
F04D 29/06
· Lubrication (F04D 13/0606 , F04D 13/0646 , F04D 13/0653 take precedence)
U F04D 29/26
· Rotors specially for elastic fluids
F04D 29/32
· · for axial flow pumps (multistage rotors F01D 5/00)
F04D 29/34
· · · Blade mountings (for axial flow compressors F04D 29/322)
F04D 29/36
· · · · adjustable (flexible blades F04D 29/382)
F04D 29/38
· · · Blades (for axial flow compressors F04D 29/324)
F04D 29/40
· Casings; Connections of working fluid (bleed or by-pass valves F04D 15/0011 , F04D 27/0215)
U F04D 29/42
· · for radial or helico-centrifugal pumps
U F04D 29/44
· · · Fluid-guiding means, e.g. diffusers
U F04D 29/46
· · · · adjustable
F04D 29/48
· · · · · for unidirectional fluid flow in reversible pumps (rotors for reverse action F04D 29/2283)
F04D 29/50
· · · · · for reversing fluid flow (rotors for reverse action F04D 29/2283)
F04D 29/58
· Cooling (of machines or engines in general F01P); Heating; Diminishing heat transfer (for the motor of air-pump units F04D 25/082 ; cooling of shafts or bearings F04D 29/04)

U F04D 29/66
· Combating cavitation, whirls, noise, vibration or the like (gas-flow silencers for machines or engines in general F01N); Balancing (surge control F04D 27/02)
F04D 29/68
· · by influencing boundary layers (by bleeding elastic fluid F04D 27/0215)

Project: N/A (F15B)

F15B 3/00
Intensifiers or fluid-pressure converters, e.g. pressure exchangers; Conveying pressure from one fluid system to another, without contact between the fluids (fluid-driven pumps F04B 9/08)

F15B 7/00
Systems in which the movement produced is definitely related to the output of a volumetric pump; Telemotors (for control in motor vehicles B60K ; in ships B63H 25/00 ; in aircraft B64C 13/00 ; combinations of telemotor and servomotor systems F15B 17/00)

F15B 9/00
Servomotors with follow-up action, [e.g. obtained by feed-back control], i.e. in which the position of the actuated member conforms with that of the controlling member (F15B 11/10 takes precedence)
U F15B 9/02
· with servomotors of the reciprocatable or oscillatable type
F15B 9/03
· · with electrical control means (F15B 9/07 , F15B 9/09 , F15B 9/17 take precedence)
U F15B 11/00
Servomotor systems without provision for follow-up action; (Circuits therefor) (F15B 3/00 takes precedence)
U F15B 11/02
· Systems essentially incorporating special features for controlling the speed or actuating force of an output member
F15B 11/024
· · by means of differential connection of the servomotor lines, e.g. regenerative circuits (interconnecting valve details F15B 13/021)
U F15B 11/08
· with only one servomotor
F15B 11/12
· · providing distinct intermediate positions; with step-by-step action (with a number of pistons in a single cylinder step-by-step action obtained by combining two or more servomotors F15B 11/18 ; (for restricting the stroke F15B 15/24)
F15B 11/15 · with special provision for automatic return \{(fluid gearing with oscillating input or output F16H 43/00)\}

F15B 11/16 · with two or more servomotors \{(for soil-shifting machines E02F 9/22)\}

U F15B 13/00 Details of servomotor systems \{(F15B 1/04, F15B 1/26, F15B 3/00, F15B 7/08, F15B 11/02, F15B 11/10, F15B 15/00 take precedence); Valves for servomotor systems\}

F15B 13/02 · Fluid distribution or supply devices characterised by their adaptation to the control of servomotors \{(F15B 11/15 takes precedence); multiple-way valves F16K 11/00\)

WARNING Subgroups F15B 13/023 to F15B 13/029 are not complete, see F15B 13/02

F15B 13/04 · for use with a single servomotor

F15B 13/042 · · · operated by fluid pressure \{(F15B 13/0401, F15B 13/0416 take precedence)\}

F15B 13/043 · · · · with electrically-controlled pilot valves \{(electrically-operated main valves F15B 13/044)\}

F15B 13/044 · · · · operated by electrically-controlled means, e.g. solenoids, torque-motors \{(electrically-controlled pilot valves F15B 13/043)\}

F15B 15/00 Fluid-actuated devices for displacing a member from one position to another \{(motors for continuous movement F01 to F03); Gearing associated therewith\}

F15B 15/18 · Combined units comprising both motor and pump \{(telemotors F15B 7/00)\}

U F15B 15/20 · Other details \{e.g. assembly with regulating devices\}

F15B 15/26 · · Locking mechanisms \{(locking valves not combined with the actuator F15B 13/01)\}

Project: N/A (F15C)

U F15C 1/00 Circuit elements having no moving parts

F15C 1/001 · \{for punched-card machines (punched-card machines G06K); for typewriters (typewriters B41J); for keyboards; for conveying cards or tape; for conveying through tubes \{transport through tubes B65G 51/00, B65G 53/00\}; for computers \{non-electric computers G06C, G06D, G06G\}; for dc-ac transducers for information processing \{dc-ac converters H02M\}; for signal transmission \{telegraphic apparatus H04L\}\}

F15C 1/002 · \{for controlling engines, turbines, compressors \{starting, speed regulation, temperature control or the like\} \{control of internal-combustion piston engines F02D; of turbines F01D, F02C; of fans F04D 27/00; speedometers G01P\}\}

F15C 1/02 · Details, \{e.g. special constructional devices for circuits with fluid elements, such as resistances, capacitive circuit elements; devices preventing reaction coupling in composite elements \{servomotor systems adapted for maintaining constant speed F15B 11/05\}; Switch boards; Programme devices \{hydraulic programme control F15B 21/02\}\}

F15C 1/04 · · Means for controlling fluid streams to fluid devices, e.g. by electric signals \{or other signals, no mixing taking place between the signal and the flow to be controlled \{fluid information or pulse transducers F15B 5/00\}; electric regulation with electro-fluid amplifiers G05B 7/02; fluid operating means for indicating or recording members in measuring instruments G01D 5/42; distribution or supply devices for servomotors with electrically-controlled pilot valves F15B 13/043\}\}
Constructional details; Selection of specified materials; Constructional realisation of one single element; Canal shapes; Jet nozzles; Assembling an element with other devices, only if the element forms the main part (F15C 5/00 takes precedence)

NOTE

Group F15C 1/22 takes precedence over groups F15C 1/08 to F15C 1/20.

Boundary-layer devices, e.g. wall-attachment amplifiers (coanda effect (fluid oscillators of pulse generators F15B 21/12))

Circuit elements having moving parts (valves, construction of valves F16K)

NOTE

Group F15C 3/16 takes precedence over groups F15C 3/02 to F15C 3/14.

using balls (or pill-shaped disks (using fluid drops or similar deformable bodies F15C 3/002))

Features common to bolt and nut

Surface treatment of parts furnished with screw-thread, e.g. for preventing seizure (or fretting (corrosion preventing means F16B 33/008; settable coatings for locking threaded members F16B 39/225; deformable coatings for locking threaded members F16B 39/34))

Bearings with rolling contact, for exclusively rotary movement (adjustable bearings F16C 23/00, F16C 25/00; electrically insulating bearings H02K 5/173)

with bearing rollers essentially of the same size in one or more circular rows, e.g. needle bearings

for both radial and axial load

with a single row of rollers

with tapered rollers, i.e. rollers having essentially the shape of a truncated cone

with a single rib on the inner ring, i.e. only with an inner ring back face rib

with two ribs on the inner ring, i.e. with a front face rib and a back face rib

with a rib on the outer ring facing the large end of the rollers

Couplings for rigidly connecting two coaxial shafts or other movable machine elements (attachment of wheels to axles for railway carriages B60B; for attachment of cranks to their shafts F16C 3/10)

for attachment of a member on a shaft or on a shaft-end (attachment of marine propellers on shafts B63H 23/34)

with clamping hub; with hub and longitudinal key

with radial clamping due to axial loading of at least one pair of conical surfaces ((tapered keys F16D 1/0882))

using one or more elastic segmented conical rings forming at least one of the conical surfaces, the rings being expanded or contracted to effect clamping (F16D 1/091 takes precedence)
with clamping effected by ring contraction only {(for connecting two abutting shafts F16D 1/02)}

Friction clutches (arrangements for synchronisation F16D 23/02)

· with axially-movable clutching members (similar brakes F16D 55/00)

· with flat clutching surfaces, e.g. discs

· Clutches with multiple lamellae {Clutches in which three or more axially movable members are fixed alternately to the shafts to be coupled and are pressed from one side towards an axially-located member (F16D 13/385 takes precedence)}

· Details {(tools for assembling or disassembling clutches B25B 27/0064)}

· Clutching elements (friction lining or attachment thereof F16D 69/00)

· Clutch-plates; Clutch-lamellae (brake-plates, brake-lamellae F16D 65/12)

· Attachments of plates or lamellae to their supports {(one or more discs connected to the linings transmitting torque to one or more discs connected to the hub by helical springs in windows in the discs, i.e. rotary vibration dampers F16F 15/12)}

· Pressure members, e.g. pressure plates, for clutch-plates or lamellae; Guiding arrangements for pressure members {(clutch flywheels comprising two or more masses with a rotational damper F16F 15/12)}

Magnetically-(or electrically-)actuated clutches; Control or electric circuits therefor (clutches with magnetisable particles F16D 37/02 ; { with electro-rheological fluids F16D 37/008})

· with electromagnets incorporated in the clutch, i.e. with collecting rings {(F16D 27/004 takes precedence)}

· with an electromagnet not rotating with a clutching member, i.e. without collecting rings {(F16D 27/004 takes precedence)}

· Clutch systems with a plurality of electro-magnetically-actuated clutches {(F16D 27/004 takes precedence)}

Liquid-resistance brakes; {Brakes using the internal friction of fluids or fluid-like media, e.g. powders (for braking drums, barrels or ropes of cranes, lift hoists or winches B66D 5/026)}

Parts or details (similar members for clutches F16D 13/58)

· for disc brakes {(discs characterised by means for cooling F16D 65/128)}

Springs (working with fluid F16F 5/00 , F16F 9/00)

· made of steel or other material having low internal friction {(characterised by their special construction from fibre-reinforced plastics F16F 1/366 ; spring units consisting of several springs F16F 3/02 ; making springs from wire B21F 35/000); Wound, torsion, leaf, cup, ring or the like springs, the material of the spring not being relevant

· Wound springs {(making springs by coiling wire B21F 3/00)}

· Spiral springs with turns lying substantially in plane surfaces {(F16F 1/326 takes precedence)}

· Attachments or mountings {(F16F 1/041 , F16F 13/02 take precedence; of combinations of vibration damper and mechanical spring for vehicle suspension units B60G 15/02)}
· · · comprising inserts and spacers between the windings for changing the mechanical or physical characteristics of the spring ((F16F 1/122 takes precedence))

· · · Torsion springs consisting of bars or tubes

· · · Attachments or mountings ((F16F 1/145 takes precedence; mounting means for vehicle stabiliser bars B60G 21/0551))

· · · Leaf springs ((planar springs in general F16F 1/027; "Belleville"-type springs with generally radial arms F16F 1/324))

· · · with means for modifying the spring characteristic ((fluid regulation of leaf spring characteristics in vehicle suspensions B60G 17/0275))

· · · made of rubber or other material having high internal friction, e.g. thermoplastic elastomers (spring units consisting of several springs F16F 3/08))

· · · (characterised by their material (F16F 1/362, F16F 1/364, F16F 1/366, F16F 1/37 take precedence; composition of macromolecular compounds in general C08L))

· · · (comprising magneto-rheological elastomers (MR), (magneto-rheological fluid dampers F16F 9/535))

· · · of foam-like material, i.e. micro-cellular material, e.g. sponge rubber ((padded linings for vehicle interiors B60R 21/04))

· · · characterised by having a particular shape ((F16F 9/58 takes precedence))

· · · with a sleeve of elastic material between a rigid outer sleeve and a rigid inner sleeve or pin, i.e. bushing-type (hydraulically-damped bushes F16F 13/14; suppression of vibrations in rotating systems by making use of elastomeric spring members between rotating elements, driveline torque being transmitted therebetween F16F 15/126; by making use of a dynamic damping mass attached to a rotating element by means of elastomeric springs F16F 15/14; pivots per se F16C 11/00; elastic or yielding bearings or bearing supports F16C 27/00; parts of sliding-contact bearings, e.g. bushes F16C 33/04))

· · · comprising means for modifying the rigidity in particular directions ((spherical or conical sleeves F16F 1/393))

· · · consisting of a stack of similar elements separated by non-elastic intermediate layers ((F16F 9/306 takes precedence; laminated constructions to protect buildings against abnormal external influences, e.g. earthquakes, E04H 9/022))

· · · the spring consisting of generally conically arranged elements ((if sleeve-like, i.e. a surface of revolution F16F 1/3935))

Spring units consisting of several springs, e.g. for obtaining a desired spring characteristic ((F16F 1/32, F16F 1/34, F16F 7/14 take precedence); if including fluid springs F16F 5/00, F16F 13/00)

NOTE
In this group, vehicle leaf spring units, i.e. "packets" of individual leaves, are considered as a single spring

· · · with springs made of a material having high internal friction, e.g. rubber ((multi-part grommet-type resilient mountings F16F 1/3735))

· · · Units comprising several springs made of plastics or the like material (F16F 1/40, F16F 1/545) take precedence)

· · · the springs being of different materials, e.g. having different types of rubber ((F16F 1/3835 takes precedence))

· · · combined with springs made of steel or other material having low internal friction
the steel spring being in contact with the rubber spring (F16F 1/12 takes precedence)

Liquid springs in which the liquid works as a spring by compression, e.g. combined with throttling action; Combinations of devices including liquid springs (dampers with solid or semi-solid material F16F 9/30)

Magnetic springs; (magnetic spring arrangements for the suppression of vibration in systems F16F 15/03); Fluid magnetic springs, (i.e. magnetic spring combined with a fluid)

Vibration-dampers; Shock-absorbers (using fluid F16F 5/00, F16F 9/00; specific for rotary systems F16F 15/10; (belt tensioners F16H 7/12)

with relatively-rotatable friction surfaces that are pressed together (F16F 7/02 takes precedence; one of the members being a spring F16F 13/02; (friction devices between relatively-movable parts of a hinge E05D 11/08; braking devices for wings E05F 5/00))

in the direction of the axis of rotation (F16F 7/03 takes precedence)

in a direction perpendicular or inclined to the axis of rotation (F16F 7/03 takes precedence)

using inertia effect (F16F 13/108, F16F 15/10, F16F 15/22 take precedence; stabilising vehicle bodies by means of movable masses B62D 37/04; protection of buildings against vibrations or shocks by mass dampers E04B 1/985; arrangements or devices for damping mechanical oscillations of power lines H02G 7/14)

the inertia member being resiliently mounted (F16F 7/102 takes precedence)

using plastic deformation of members (F16F 9/30 takes precedence; yieldable means for mounting bumpers on vehicles B60R 19/26; yieldable or collapsible steering columns B62D 1/192)

Springs, vibration-dampers, shock-absorbers, or similarly-constructed movement-dampers using a fluid or the equivalent as damping medium (F16F 5/00 takes precedence; connection of valves to inflatable elastic bodies B60C 29/00; (braking devices, stops or buffers for wing-operating appliances E05F 3/00, E05F 5/00))

using gas only (or vacuum (F16F 9/06 takes precedence))

in a chamber with a flexible wall ((producing hollow articles of plastics, e.g. air bellows, B29D 22/00))

using both gas and liquid ((F16F 9/486 take precedence; self-pumping fluid springs B60G 17/04))

(where gas is)in a chamber with a flexible wall ((pressurised fluid system accumulators per se F15B 1/04))

comprising a hydropneumatic accumulator of the membrane type provided on the upper or the lower end of a damper or separately from or laterally on the damper ((F16F 9/088 takes precedence))

using liquid only: using a fluid of which the nature is immaterial

Devices with one or more members, e.g. pistons, vanes, moving to and fro in chambers and using throttling effect

involving only straight-line movement of the effective parts ((wing closers or openers with liquid piston brakes E05F 3/04))

with solid or semi-solid material, e.g. pasty masses, as damping medium ((in devices where rotary elements are damped by viscous shear effect only, any throttling effect being immaterial F16F 9/12; where members moving with a rotating system are being damped F16F 15/16))
U F16F 9/32 · Details
U F16F 9/34 · · Special valve constructions ({F16F 9/44 , F16F 9/50 take precedence; filtering details F16F 9/3285} ; valves in general F16K); Shape or construction of throttling passages
F16F 9/342 · · · Throttling passages operating with metering pins ({F16F 9/486 takes precedence})
F16F 9/43 · · Filling (or drainage) arrangements, e.g. for supply of gas ({filling vessels with, or discharging from vessels, compressed, liquefied, or solidified gases F17C})
F16F 9/53 · · Means for adjusting damping characteristics by varying fluid viscosity, e.g. electromagnetically ({F16F 13/30 takes precedence}; brakes comprising a medium with electrically or magnetically controlled friction F16D 57/002; electrorheological fluids per se C10M 171/001; magnetorheological fluids per se H01F 1/447)
F16F 9/54 · · Arrangements for attachment {{grommet-type rubber mounting springs per se F16F 1/3732; construction of cylinder ends F16F 9/3242; attachments to vehicles B60G 13/001, B60G 15/00})
F16F 9/56 · · Means for adjusting the length of, or for locking, the spring or damper, e.g. at the end of the stroke {{F16F 9/50 takes precedence; for telescopic gas springs or dampers F16F 9/0245; vehicle suspension locking arrangements B60G 17/009}}
U F16F 13/00 Units comprising springs of the non-fluid type as well as vibration-dampers, shock-absorbers, or fluid springs (F16F 5/00, F16F 6/00, F16F 9/003) take precedence
U F16F 13/04 · comprising both a plastics spring and a damper, e.g. a friction damper
U F16F 13/06 · · the damper being a fluid damper, e.g. the plastics spring not forming a part of the wall of the fluid chamber of the damper (F16F 13/26 takes precedence)
U F16F 13/08 · · · the plastics spring forming at least a part of the wall of the fluid chamber of the damper (F16F 13/26 to F16F 13/24 take precedence)
U F16F 13/14 · · · · Units of the bushing type, {i.e. loaded predominantly radially (bushes F16F 1/38; mounting brackets therefor F16F 1/3849)}
F16F 13/16 · · · · · specially adapted for receiving axial loads {{F16F 13/1436 takes precedence}}
F16F 13/14 · · · · · characterised by adjusting or regulating devices responsive to exterior conditions {{F16F 13/101 takes precedence}}
U F16F 15/00 Suppression of vibrations in systems {{damping of non-rotary systems using inertia effect F16F 7/10; prevention or isolation of vibrations in machine tools B23Q 11/0032; suppression of driveline vibrations in hybrid vehicle transmissions B60W 30/20; vehicle seat suspension devices B60N 2/50; methods or devices for protecting against, or damping of, acoustic waves, e.g. sound G10K 11/16)}; Means or arrangements for avoiding or reducing out-of-balance forces, e.g. due to motion {{vibration absorbing or balancing means for aircraft propellers B64C 11/008, for rotorcraft rotors B64C 27/001}; testing static and dynamic balance of machines or structures G01M 1/00}
U F16F 15/02 · Suppression of vibrations of non-rotating, e.g. reciprocating systems; Suppression of vibrations of rotating systems by use of members not moving with the rotating systems {{F16F 15/005 takes precedence}; layered products B32B; suppression of vibration in ships B63; reliving load on bearings, using magnetic means F16C 39/06)}
U F16F 15/023 · · using fluid means
F16F 15/027 · · · comprising control arrangements {{F16F 15/0237 takes precedence}}
U F16F 15/04 · · using elastic means (single elements or their attachment F16F 1/00 to F16F 13/00); ((F16F 15/023, F16F 15/03 take precedence))
F16F 15/08 · · · with rubber springs ((grommet- or bushing-type resilient mountings F16F 1/37, F16F 1/38); with springs made of rubber and metal (arrangement of internal-combustion or jet-propulsion units B60K 5/12; mounting of propulsion plants on vessels B63H 21/30; mounting of vehicle drivers’ cabs B62D 33/0604))

U F16F 15/10 · Suppression of vibrations in rotating systems by making use of members moving with the system (by balancing F16F 15/22; (yielding couplings F16D 3/00); with flywheels acting variably or intermittently F16H; (construction providing resilience or vibration-damping for gear elements F16H 55/14))

U F16F 15/12 · · using elastic members or friction-damping members, e.g. between a rotating shaft and a gyratory mass mounted thereon ((F16F 15/14, F16F 15/16 take precedence)

F16F 15/121 · · · using springs as elastic members, e.g. metallic springs ((F16F 15/133 takes precedence))
F16F 15/123 · · · · Wound springs ((F16F 15/1213, F16F 15/1216, F16F 15/127 take precedence))

U F16F 15/131 · · · the rotating system comprising two or more gyratory masses

U F16F 15/133 · · · · using springs as elastic members, e.g. metallic springs
F16F 15/134 · · · · · · Wound springs ((F16F 15/1333, F16F 15/1337, F16F 15/137 take precedence))
F16F 15/139 · · · · characterised by friction-damping means ((F16F 15/13128 takes precedence))

U F16F 15/16 · · using a fluid (or pasty material) (F16F 9/53, F16F 15/13157 take precedence; devices connecting input and output members F16D)

U F16F 15/167 · · · having an inertia member, e.g. ring
F16F 15/173 · · · · provided within a closed housing ((F16F 15/36 takes precedence))
F16F 15/20 · Suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems ((F16F 15/24 takes precedence))
F16F 15/22 · Compensation of inertia forces ((suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems F16F 15/20, counterweights F16F 15/28; correcting-weights for balancing rotating bodies F16F 15/32))
F16F 15/24 · · · of crankshaft systems by particular disposition of cranks, pistons, or the like ((shape of crankshafts or eccentric-shafts having regard to balancing F16C 3/20))
F16F 15/32 · Correcting- or balancing-weights or equivalent means for balancing rotating bodies, e.g. vehicle wheels ((suppression of vibrations in rotating systems by using freely rotating masses F16F 15/14; compensation of inertia forces F16F 15/22; compensating unbalance for testing purposes G01M 1/30))

Project: N/A (F16G)

U F16G 13/00 Chains (making thereof B21L)

U F16G 13/02 · Driving-chains (specially adapted to gearings with variable gear-ratio F16H 9/00)

F16G 13/06 · · with links connected by parallel driving-pins with or without rollers (so called open links (if the parallel coupling pins have only a joining function - so called closed links - F16G 13/02))
GEARING {(steering of motor vehicles by differentially driving ground-engaging elements on opposite vehicle sides B62D 11/02)}

NOTES
1. Combinations including mechanical gearings are classified in groups F16H 37/00 or F16H 47/00, unless they are provided for in groups F16H 1/00 to F16H 35/00.
2. In this subclass, sets of rigidly-connected members are regarded as single members.
3. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "toothed gearing" includes worm gearing and other gearing involving at least one wheel or sector provided with teeth or the equivalent, EXCEPT gearing with chains or toothed belts, which is treated as friction gearing;
   • "conveying motion" includes transmitting energy, and means that the applied and resultant motions are of the same kind, though they may differ in, e.g. speed, direction extent;
   • "rotary" implies that the motion may continue indefinitely;
   • "oscillating" means moving about an axis to an extent which is limited by the construction of the gearing, and which may exceed one revolution, the movement being alternately forwards and backwards during continued operation of the gearing;
   • "reciprocating" means moving substantially in a straight line, the movement being alternately forwards and backwards during continued operation of the gearing;
   • "reversing" or "reversal" means that an applied movement in one direction may produce a resultant movement in either of two opposed directions at will;
   • "central gears" includes any gears whose axis is the main axis of the gearing.
4. Attention is drawn to the following places:
   A01D 69/06 Gearings in harvesting machines
   A63H 31/00 Gearing for toys
   B21B 35/12 Toothed-wheel gearing for metal-rolling mills
   B60K Arrangement of transmissions in vehicles
   B61C 9/00 Transmissions for railway locomotives
   B62D 3/00 Vehicle steering gears
   B62M Transmissions for cycles
   B63H 23/00 Transmissions for marine propulsions
   B63H 25/00 Marine steering gears
   (B64C 27/12 Transmissions for helicopters
   B64D 35/00 Transmissions for aircraft )
   F01 to F04 Machines, engines, pumps
   F15B 15/00 Gearings associated with fluid-actuated devices
   G01D 5/04 Gearing used in indicating or recording apparatus in connection with measuring devices
   H03J 1/00 Driving arrangements for tuning resonant circuits
   H04L 13/04 Driving mechanisms for apparatus for transmission of coded digital information.
Toothed gearings for conveying rotary motion with variable gear ratio or for reversing rotary motion (speed-changing or reversing mechanisms F16H 59/00 to F16H 63/00)

- without gears having orbital motion
- exclusively or essentially with continuously meshing gears, that can be disengaged from their shafts

F16H 3/083

- with radially acting and axially controlled clutching members, e.g. sliding keys (clutches with clutching members movable otherwise than only axially F16D 11/12; clutches with wedgeable clutching members F16D 15/00; systems of mechanically actuated clutches F16D 21/04)

F16H 3/44

- using gears having orbital motion (the gear-ratio being changed by inversion of torque direction F16H 3/005)

Wobble-plate gearings; Oblique-crank gearings (conveying rotary motion with toothed nutating gears F16H 1/321)

Step-by-step mechanisms without freewheel members, e.g. Geneva driven (rotary gearings with cyclically-varying velocity ratio F16H 35/02; impulse couplings F16D 5/00; clockwork escapements G04B 15/00)

- with at least one reciprocating or oscillating transmission member (F16H 27/04 takes precedence)

Gearings based on repeated accumulation and delivery of energy

- for interconversion, based essentially on inertia, of rotary motion and reciprocating or oscillating motion (for converting into a linear propulsion force, i.e. inertia motors F03G 3/00)

Combinations of mechanical gearings, not hereinbefore provided for (applications of "underdrives" or "overdrives" in motor vehicles, combinations with differential gearings in motor vehicles B60K)

- comprising essentially only toothed or friction gearings
- with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts

- with differential gearing
- at both ends of intermediate shafts (F16H 37/0806 takes precedence)

Combinations of mechanical gearing with fluid clutches or fluid gearing (conjoint control of driveline clutches and change-speed gearing in vehicles B60W 10/02 and B60W 10/10)

- the fluid gearing being of the hydrokinetic type
- the mechanical gearing being of the type with members having orbital motion (F16H 47/065 takes precedence)

General details of gearing (of screw-and-nut gearing F16H 25/00; of fluid gearing F16H 39/00 - F16H 43/00)

- Features relating to lubrication or cooling (or heating) (in hydrokinetic gearing F16H 41/30; control of lubrication or cooling in hydrostatic gearing F16H 61/4165)

WARNING
Subgroups of F16H 57/04 are not complete pending reclassification; see provisionally also respective higher groups
F16H 57/0434 · · {relating to lubrication supply, e.g. pumps (arrangement of pumps F16H 57/0441); Pressure control (grooves with pumping effect for supplying lubricant F16H 57/0428; generation and variation of line pressure for transmission control F16H 61/0021)}

U F16H 61/00 Control functions within (control units of) change-speed- or reversing-gearings for conveying rotary motion; (Control of exclusively fluid gearing, friction gearing, gearings with endless flexible members or other particular types of gearing)

F16H 61/02 · · characterised by the signals used ((for shift actuators F16H 61/28, for continuously variable gearings F16H 61/66))

NOTES
1. Control units where gearshift is controlled by an electric circuit, are classified in F16H 61/0202
2. Control units where gearshift is controlled by hydraulic signals and a subfunction, e.g. kickdown, is controlled by an electric circuit, are classified in F16H 61/0262 with indexing of the electric features

U F16H 61/38 · · Control of exclusively fluid gearing
U F16H 61/40 · · hydrostatic (involving modification of the gearing F16H 39/02, F16H 39/04)
F16H 61/42 · · involving adjustment of a pump or motor with adjustable output or capacity ((F16H 61/46 takes precedence))

U F16H 63/00 Control outputs {from the control unit} to change-speed- or reversing-gearings for conveying rotary motion{or to other devices than the final output mechanism}

U F16H 63/02 · · Final output mechanisms therefor; Actuating means for the final output mechanisms
F16H 63/04 · · a single final output mechanism being moved by a single final actuating mechanism {((Constructional features of the final output mechanisms F16H 63/30))}
F16H 63/08 · · Multiple final output mechanisms being moved by a single common final actuating mechanism {((Constructional features of the final output mechanisms F16H 63/30))}
F16H 63/24 · · each of the final output mechanisms being moved by only one of the various final actuating mechanisms {((Constructional features of the final output mechanisms F16H 63/30))}
F16H 63/28 · · two or more final actuating mechanisms moving the same final output mechanism {((Constructional features of the final output mechanisms F16H 63/30))}
U F16H 63/30 · · Constructional features of the final output mechanisms
F16H 63/38 · · Detents ((spring-loaded ball units for holding levers in a limited number of positions G05G 5/065))

F16K VALVES; TAPS; COCKS; ACTUATING-FLOATS; DEVICES FOR VENTING OR AERATING ({{devices for emptying and evacuating the excess liquid in valves or conduits F16L 55/07}})

NOTE
Attention is drawn to the following places:
A47J 27/09 Safety devices for pressure cookers
A47J 31/46 Dispensing spouts, drain valves or like beverage-making apparatus
A61B 5/0235       Valves specially adapted for measuring pressure in heart or blood vessels
A61F 2/24       Heart valves
A61M 16/20       Valves specially adapted for medical respiratory devices
A61M 39/00       Tube connectors, tube couplings, valves or branch units specially adapted for medical use in general
A62B 9/02       Valves for respiratory apparatus
A62B 18/10       Valves for breathing masks or helmets
A62C       Fire extinguishers
{B01D 35/04       Plug, tap, or cock filters }
B05B       Nozzles, spray heads or other discharge apparatus for spraying or atomising
B60C 29/00       Arrangements of tyre-inflating valves relative to tyres or wheel rims; Connection of valves to wheel rims, tyres or other inflatable elastic bodies
B60G 17/048      Valves specially adapted for adjusting vehicle fluid-spring characteristics
B60T       Valves specially adapted for vehicle brake control systems
B62D 5/08       Vehicle power-assisted steering characterised by the type of valve used
B63B 7/00
B63C 9/00       Arrangement of inflating valves for floatable life-saving equipment
B65D 47/04       Container closures with discharging valves
B65D 90/32      Safety valves for large containers
B65D 90/54      Gates or closures on large containers
B67C 3/28       Flow control devices for bottling liquids
B67D
B67D 1/012       Hot-blast valves for blast furnaces
E02B 8/00       Details, e.g. valves, of barrages or weirs
E02B 13/02      Closures for irrigation conduits
{E03C 1/04       Water-basin installations specially adapted for wash-basins or baths }
{E03C 1/05       Arrangements on wash-basins for the remote control of taps }
E03D       Flushing valves for water-closets or urinals
{E03F 7/04       Valves for preventing return flow in sewer systems }
E05F 3/12       Valve arrangements in door closers
E21B 21/10      Valve arrangements in drilling-fluid circulation systems
E21B 34/00      Valve arrangements for boreholes or wells
{E21D 15/51       Arrangement of relief valves in hydraulic mine props }
F01B 25/10      Working-fluid valves for controlling machines or engines in general or of positive-displacement type
F01D 17/10      Final actuators for controlling non-positive displacement machines or engines
F01L  Cyclically operated valves for machines or engines
F02D 9/08  Throttle valves for controlling combustion engines
F02K 9/58  Propellant feed valves for rocket-engines
F02M  Carburettors, fuel injection
F02M 59/46  Valves for fuel injection pumps
F04  Pumps
F16F 9/34  Valves for shock absorbers
F16L 29/00
F16L 37/28  Pipe joints or quick-acting couplings with fluid cut-off means
F16L 55/00  Arrangement of valves in pipes
F16L 55/055  Valves specially adapted to prevent or minimise the effect of water hammer
F16L 55/46  Launching devices for pigs or moles
F16N 23/00  Check valves for lubrication systems
{F16L 55/055  Draining-off liquids from steam traps}
F17C 13/04  Arrangement of valves in pressure vessels
F22B 37/44  Arrangement of safety valves on steam boilers
F22D 5/34  Application of valves to automatic water-feed in boiler
F23L 13/00  Valves for air supply control to burners
{F23Q 2/16  Valves for lighters with gaseous fuel and adjustable flame }
F24C 3/12
F24C 5/16  Arrangement of valves on stoves or ranges
F24F  Air conditioning; Ventilation
F25B 41/04  Disposition of fluid circulation valves in refrigeration machines
G05D  Controlling non-electric variables
G10B 3/06  Valves for organs
G10D 9/04  Valves for other wind-actuated musical instruments
{G21C 9/06  Safety valves structurally associated with nuclear reactors }
{H01M 2/12  Vent plugs in batteries or cells }

WARNING
The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:
F16K 31/11  covered by F16K 31/06 , F16K 31/08 , F16K 31/10
F16K 31/64  " " G05D
F16K 31/66  " " F16K 31/06  ; H01F
F16K 31/68  " " G05D
F16K 31/70  " " F16K 31/002
F16K 31/72  " " F16K 31/00

U  F16K 7/00
  Diaphragm {valves or} cut-off apparatus, e.g. with a member deformed, but not moved bodily, to close the passage (container gates or closures operating by deformation of flexible walls B65D 90/56 ; means for plugging pipes or hoses F16L 55/10) (Pinch valves)

U  F16K 7/02
  · with tubular diaphragm
U F16K 7/04 · · constrictable by external radial force
F16K 7/06 · · by means of a screw-spindle, cam, or other mechanical means (F16K 7/045 takes precedence)

U F16K 17/00 Safety valves; Equalising valves, e.g. pressure relief valves
U F16K 17/18 · opening on surplus pressure on either side
F16K 17/19 · Equalising valves predominantly for tanks (when combined with safety valve by change of position F16K 17/36)

U F16K 21/00 Fluid-delivery valves, e.g. self-closing valves, for liquid handling B67D; for flushing devices for water-closets or the like E03D
F16K 21/04 · Self-closing valves, i.e. closing automatically after operation (pneumatic tools B25B 9/00)

F16K 31/00 {Actuating devices;} Operating means; Releasing devices (regulating means G05D)
F16K 31/02 · electric (F16K 31/004 takes precedence); magnetic
U F16K 31/44 · Mechanical actuating means
F16K 31/60 · Handles (form, features or function of taps or faucet handles for domestic plumbing installations E03C 1/04)

F16K 33/00 Floats for actuation of valves or other apparatus (float actuated valves F16K 31/18)

Project: N/A (F16M)
F16M 13/00 Other supports for positioning apparatus or articles (heads thereof F16M 11/02; undercarriages thereof F16M 11/20); adapted to be stuck in the ground A45F 3/44; sockets or holders for poles or posts E04H 12/22); Means for steadying hand-held apparatus or articles (supports for measuring instruments G01D 11/30; supports for casings of remote control switching devices H01H 9/025)

Project: N/A (F21S)
U F21S 8/00 Lighting devices intended for fixed installation (F21S 9/00, F21S 10/00 take precedence; using a string or strip of light sources F21S 4/00)
F21S 8/08 · with a standard (F21S 6/00 takes precedence)
U F21S 10/00 Lighting devices or systems producing a varying lighting effect
F21S 10/02 · changing colors (F21S 10/002 to F21S 10/007, F21S 10/04 take precedence)
F21S 10/06 · flashing, e.g. with rotating reflector or light source (signalling lighting devices mounted on vehicles B60Q 1/26)
F21S 11/00 Non-electric lighting devices or systems using daylight (roofs with sky-light opening E04D 13/03; sun blinds for windows with means for redirecting light onto ceiling of a room E06B 9/00; hybrid lighting devices combining artificial and natural light F21S 19/00; solar heat collectors F24J 2/00; solar cells or solar cell modules H01L 31/00)

Project: N/A (F23B)
U F23B 1/00 Combustion apparatus using only lump fuel
U F23B 1/16 · the combustion apparatus being modified according to the form of grate or other fuel support (for incinerators F23G 5/002)
F23B 1/28 · using ridge-type grate, e.g. for combustion of peat, sawdust, or pulverulent fuel (combustion of peat, sawdust F23G 7/10)
Project: N/A (F23B)

U F23B 1/30 · characterised by the form of combustion chamber
F23B 1/38 · for combustion of peat, sawdust, or pulverulent fuel on a grate or other fuel support (combustion of peat, sawdust F23G 7/10)

Project: N/A (F23C)

F23C 15/00 Apparatus in which combustion takes place in pulses influenced by acoustic resonance in a gas mass (for generating combustion products of high pressure or high velocity F23R 7/00; starting devices F23D 11/42)

Project: N/A (F23N)

U F23N 5/00 Systems for controlling combustion (F23N 1/00, F23N 3/00 take precedence)
U F23N 5/02 · using devices responsive to thermal changes or to thermal expansion of a medium
F23N 5/12 · using ionisation-sensitive elements, i.e. flame rods (testing of other ignition means, e.g. flame F02P 17/12; analysing gases by investigating the ionisation by using heat G01N 27/626)

Project: N/A (F24B)

U F24B 1/00 Stoves or ranges
U F24B 1/18 · Stoves with open fires, e.g. fireplaces
U F24B 1/191 · Component parts; Accessories
F24B 1/192 · · Doors; Screens; Fuel guards (fire-screens A47G 5/04, protective guards F24C 15/36)

Project: N/A (F24D)

U F24D 11/00 Central heating systems using heat accumulated in storage masses (self-contained storage heating units F24D 15/02; storage masses, see the relevant subclasses)
F24D 11/02 · using heat pumps (using heat-pumps for producing heat in general F25B 29/00)

Project: N/A (F24F)

U F24F 7/00 Ventilation, (e.g. by means of wall-ducts; systems using window or roof apertures)
U F24F 7/007 · with forced flow (using ducting systems F24F 7/06)
F24F 7/013 · using wall or window fans, displacing air through the wall or window (possibly through a grill or through a shutter or flap (with heating elements F24F 3/00 to F24F 3/14; ventilators with provision for recirculating air or piping it away F24F 7/06; room ventilators, portable ventilators F04D 25/08))
F24F 7/04 · with ducting systems (also by double walls; with natural circulation (F24F 7/02 takes precedence))
F24F 7/06 · · with forced air circulation, e.g. by fan (positioning of a ventilator in or against a conduit ventilators per se F04D 25/08)

Project: N/A (F24H)

U F24H 9/00 Details
F24H 9/06 · Arrangement of mountings or supports (for heaters, e.g. boilers, other than space heating radiators (space heating radiators F24D 19/02))
Devices using other cold materials; Devices using cold-storage bodies

- using liquefied gases, e.g. liquid air {(for cooling semiconductor devices H01L 23/445)}

Processes or apparatus for liquefying or solidifying gases or gaseous mixtures {(for ammonia in general C01C 1/00; solidification of carbonic acid C01B 31/22; recovering volatile solvents by condensation B01D 5/00; vapor recovery systems combined with filling nozzles B67D 7/54)(not used)}

- requiring the use of refrigeration, e.g. of helium or hydrogen { Details and kind of the refrigeration system used; Integration with other units or processes; Controlling aspects of the process (not used)}

Processes or apparatus for separating the constituents of gaseous mixtures involving the use of liquefaction or solidification {(not used)}

- by rectification, i.e. by continuous interchange of heat and material between a vapour stream and a liquid stream (F25J 3/08 takes precedence; ( purification of hydrocarbons in general C07C 7/00; not used))

- (characterised by the feed stream (for air F25J 3/04)(not used)}

- {H₂/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general C01B 31/18, C10J, C10K; production of hydrogen containing gas C01B 3/00)}

- (characterised by the separated product stream (not used))

- {separation of H₂/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general C01B 31/18, C10J, C10K, production of hydrogen containing gas C01B 3/00)}

- (separation of H₂/N₂ mixtures, i.e. of ammonia synthesis gas (in general C01B 3/00)}

- by partial condensation (F25J 3/08 takes precedence; by rectification F25J 3/02; ( purification of hydrocarbons in general C07C 7/00; not used))

- (characterised by the feed stream (for air F25J 3/04)(not used)}

- {H₂/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general C01B 31/18, C10J, C10K; production of hydrogen containing gas C01B 3/00)}

- (characterised by the separated product stream (not used))

- {separation of H₂/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general C01B 31/18, C10J, C10K, production of hydrogen containing gas C01B 3/00)}

- (separation of H₂/N₂ mixtures, i.e. of ammonia synthesis gas (in general C01B 3/00)}
Preliminary treatment of solid materials or objects to facilitate drying, e.g. mixing or backmixing the materials to be dried with predominantly dry solids (F26B 5/005 takes precedence)
· Arrangements of devices using drying processes not involving heating (such processes per se F26B 5/00)

· for applying suction (F26B 13/16 takes precedence)

Machines or apparatus for drying objects with progressive movement;
Machines or apparatus for drying batches of material in compact form (F26B 13/00, F26B 17/00 take precedence; conveyors in general B65G)

· with movement in a path composed of one or more straight lines, e.g. compound, (the movement being in alternate horizontal and vertical directions)

· the objects or batches of materials being carried by trays or racks (or receptacles, which may be connected to endless chains or belts (trays, racks per se F26B 25/18; with vertical movement F26B 15/22))

· the lines being all horizontal or slightly inclined

· the objects or batches of materials being carried by endless belts (the objects or batches of material being carried by trays or holders supported by endless belts or chains (F26B 15/205 takes precedence; vertical bulk material conveyer-driers F26B 17/06))

· with movement performed solely by gravity, (i.e. the material moving through a substantially vertical drying enclosure, e.g. shaft)

· the materials passing down a heated surface, (e.g. fluid-heated closed ducts or other heating elements in contact with the moving stack of material (F26B 17/128 takes precedence))

· with movement performed by shooting or throwing the materials, (e.g. after which the materials are subject to impact (F26B 17/108 takes precedence))

· with movement performed by rollers or discs with material passing over or between them, (e.g. suction drum, sieve, (the axis of rotation being in fixed position (moving rotating rollers F26B 15/122))

Arrangements (or duct systems, e.g. in combination with pallet boxes,) for supplying and controlling air or gases for drying solid materials or objects (F26B 9/10 takes precedence; systems for vehicle body drying B60S 3/002; air conditioning or ventilation in general F24F)

· Controlling, e.g. regulating, parameters of gas supply (F26B 21/14 takes precedence; control in general G05)

· Temperature; Pressure (F26B 23/026 takes precedence)

· Velocity of flow; Quantity of flow, (e.g. by varying fan speed, by modifying cross flow area (F26B 21/004 takes precedence; changing air flow pattern F26B 21/022))

Heating arrangements (by radiation, e.g. infra-red, ultra-violet, solar F26B 3/28 and F26B 3/30; using heated air or gases F26B 21/00)
F26B 23/10 · using tubes or passages containing heated fluids, e.g. acting as radiative elements; Closed-loop systems for combustion gases

U F26B 25/00 Details of general application not covered by group F26B 21/00 or F26B 23/00 (loading, conveying, and unloading in general B65G)

F26B 25/04 · Agitating, stirring, or scraping devices (Arrangement of doctor blades)

F26B 25/06 · Chambers, containers, or receptacles (large containers having means for heating, cooling, aerating or other conditioning of contents)

Project: N/A (F28D)

U F28D 9/00 Heat-exchange apparatus having stationary plate-like or laminated conduit assemblies for both heat-exchange media, the media being in contact with different sides of a conduit wall (F28F 3/08, F28F 3/086 take precedence)

F28D 9/0081 · (the conduits for one heat-exchange medium being formed by a single plate-like element (F28D 9/0012 takes precedence); the conduits for one heat-exchange medium being integrated in one single plate-like element (F28D 9/0012 takes precedence))

F28D 15/00 Heat-exchange apparatus with the intermediate heat-transfer medium in closed tubes passing into or through the conduit walls; Heat-exchange apparatus employing intermediate heat-transfer medium or bodies (F28D 17/00, F28D 19/00, F28D 20/00 take precedence)

Project: N/A (F41A)

U F41A 1/00 Missile propulsion characterised by the use of explosive or combustible propellant charges (projecting missiles without use of explosive or combustible propellant charge F41B; launching rockets or torpedoes F41F 3/00; missile self-propulsion F42B 15/00)

F41A 1/06 · Adjusting the range without varying elevation angle or propellant charge data, e.g. by venting a part of the propulsive charge gases, or by adjusting the capacity of the cartridge or combustion chamber (adjusting the range by using gas-relieving ports in the barrel)

U F41A 3/00 Breech mechanisms, e.g. locks

U F41A 3/64 · Mounting of breech-blocks; Accessories for breech-blocks or breech-block mountings

U F41A 3/70 · · Anti-rebound arrangements, i.e. preventing rebound of the bolt out of the firing position; (Safety for locking the breech-block or bolt in a safety position)

F41A 3/72 · · Operating handles or levers; Mounting thereof in breech-blocks or bolts (F41C 7/02, F41C 7/06 take precedence)

U F41A 3/78 · · Bolt buffer or recuperator means

F41A 3/90 · · · Fluid buffers (F41A 3/62 takes precedence)

U F41A 9/00 Feeding or loading of ammunition (conveying ammunition through pipes by the action of flowing gases; Magazines; Guiding means for the extracting of cartridges (cartridge extractors or ejectors F41A 15/00)

U F41A 9/01 · Feeding of unbelted ammunition
· using cyclically moving conveyers, i.e. conveyers having ammunition pusher or carrier elements which are emptied or disengaged from the ammunition during the return stroke

· Movable ammunition carriers or loading trays, e.g. for feeding from magazines (locking of ammunition in ammunition containers or loading trays F42B 39/22)

· Loading arrangements, i.e. for bringing the ammunition into the firing position

· the cartridge chamber or the barrel as a whole being tiltable (or transversely slidable) between a loading and a firing position (F41A 9/25 and F41A 9/27 take precedence)

· Cartridge guides, stops or positioners, e.g. for cartridge extraction

· Movable guiding means (F41A 9/55 takes precedence)

· Safety arrangements, e.g. safeties

· Key-operated safeties (F41A 17/44 takes precedence)

· Magazine safeties

· locking the gun (automatically) in a safety condition when the magazine is empty or removed (F41A 17/44 takes precedence)

· Firing or trigger mechanisms; Cocking mechanisms

· Mechanical firing mechanisms, e.g. counterrecoil firing, recoil actuated firing mechanisms (F41A 19/01 to F41A 19/05, F41A 19/59 take precedence)

· Percussion or firing pins, i.e. fixed or slidably-mounted striker elements; Mountings therefor (F41A 19/26 take precedence)

· having only slidably-mounted striker elements, i.e. percussion or firing pins

· the percussion or firing pin and the breech-block or bolt forming one piece (F41A 19/34 takes precedence)

· Electric firing mechanisms (F41A 17/10, F41A 17/12 take precedence)

· characterised by the means for generating electric energy

· Inductive generators (F41A 19/63 takes precedence)

· Barrels; Gun tubes; Muzzle attachments; Barrel mounting means (F41A 25/00 takes precedence; barrel attachments for firing grenades or riot-control ammunition from small arms F41C 27/06)

· Barrels which have undergone surface treatment, e.g. phosphating (F41A 21/44 takes precedence)

· Electromagnetic launchers; (Plasma-actuated launchers (projectiles for electromagnetic or plasma guns F42B 6/006))

· Spring guns (F41J 9/18 takes precedence; catapults having a cocking device F41B 3/005; catapults F41B 3/02; throwing apparatus for boomerangs A63B 65/08; spring-loaded devices for projecting sporting balls A63B 69/407)

· Toy guns, i.e. guns launching objects of the gliding type, e.g. airplanes, parachute missiles (F41B 7/006 and F41B 7/02 take precedence)

· Sighting devices (for indirect laying of fire F41G 3/16; bombsights F41G 3/24; structurally associated with laser telemeters F41G 3/065; mounting tubular or beam shaped aiming devices on firearms F41G 11/001)
U F41G 1/06 · Rearsights
F41G 1/08 · · with aperture; (tubular or of ring form; Peep sights (F41G 1/42 takes precedence))

Project: N/A (F41H)

U F41H 5/00 · · Armour; Armour plates (processes for manufacturing or treating B21, C21, { heat treatment C21D 9/42; wall or panel structure for safes E05G 1/024})
U F41H 5/06 · Shields (in ships B63G 9/00; in aircraft B64D 7/00 (blasting mats F42D 5/05))
F41H 5/16 · · for ordnance (or tanks (F41H 5/18 takes precedence))
F41H 5/24 · · for stationary use, e.g. fortifications (Shelters, Guard Booths (air-raid shelters E04H 9/04))

U F41H 5/18 · · · for ordnance (or tanks (F41H 5/18 takes precedence))

Project: N/A (F42B)

U F42B 3/00 · · · Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords C06C 5/00; chemical aspects of detonators, blasting caps or primers C06C 7/00)
U F42B 3/10 · · Initiators therefor (percussion fuzes F42C 7/00; percussion caps F42C 19/10; electric primers F42C 19/12)

NOTE
Group F42B 3/18 takes precedence over groups F42B 3/103 to F42B 3/16.
U F42B 3/18 · · Safety initiators resistant to premature firing by static electricity or stray currents
F42B 3/188 · · · having radio-frequency filters, {e.g. containing ferrite cores or inductances (F42B 3/185 takes precedence)}
U F42B 5/00 · · · Cartridge ammunition, e.g. separately-loaded propellant charges (shotgun ammunition F42B 7/00; practice or training ammunition F42B 8/00; missiles therefor F42B 12/00, F42B 14/00, F42B 15/00)
U F42B 5/02 · Cartridges, i.e. cases with charge and missile
U F42B 5/18 · · Caseless ammunition; Cartridges having combustible cases
F42B 5/192 · · · Cartridge cases characterised by the material { of the casing wall (cartridge bags F42B 5/38)}
U F42B 23/00 · · Land mines; {Land torpedoes} (F42B 12/00 takes precedence; for practice or training F42B 8/28)
F42B 23/04 · · · anti-vehicle, { e.g. anti-aircraft or anti tank (hollow charges per se F42B 1/02; artillery projectiles having hollow charges F42B 12/10)}

U F42B 39/00 · · Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags
F42B 39/20 · · · Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable (Blow-out panels; Venting arrangements (ventilating arrangements on packages formed from foldable or erectable blanks B65D 5/4295; packages with pressure-relief valves incorporated in a container wall B65D 77/225)}

Project: N/A (F42D)

U F42D 1/00 · · · Blasting methods or apparatus, e.g. loading or tamping
F42D 1/04 · · · · Arrangements for ignition {{ignition systems for shaped charge perforators E21B 43/1185; ignition devices for seismic energy generators G01V 1/06}}
Particular applications of blasting techniques {([explosive welding B23K 20/08; explosive bolts or actuators F42B 3/006; explosive valves F16K 13/06; cutting devices actuated by explosion B23D 15/145; pyrotechnical actuators F15B 15/19; switching devices actuated by explosion H01H 39/00])}

MEASURING LENGTH, THICKNESS OR SIMILAR LINEAR DIMENSIONS; MEASURING ANGLES; MEASURING IRREGULARITIES OF SURFACES OR CONTOURS {([measuring human body, see the relevant places, where such exist, e.g. A41H 1/00, A43D 1/02, A61B 5/103; measuring appliances combined with walking-sticks A45B 3/08; sorting according to dimensions B07; tool-setting or drawing instruments not specially modified for measuring B23B 49/00, B23Q 15/00 to B23Q 17/00, B43L; combinations of measuring devices with writing-appliances B43K 29/08; geodetical, nautical or aeronautical measuring, surveying, rangefinding G01C; photogrammetry G01C 11/00; measuring force or stress, in general G01L 1/00; investigating or analysing particle size, investigating or analysing surface area of porous material G01N; measuring position, distance or direction, in general, by reception or emission of radiowaves or other waves and based on propagation effects, e.g. Doppler effect, propagation time, direction of propagation G01S; geophysical measuring G01V; measuring length or roll diameter of film in cameras or projectors G03B 1/60; combinations of measuring devices with means for controlling or regulating G05; methods or arrangements for converting the position of a manually-operated writing or tracing member into an electrical signal G06K 11/00; measuring elapsed travel of recording medium in recording and playback equipment, sensing diameter of record in autochange gramophones G11B; means structurally associated with electric rotary current collectors for indicating brush wear H01R 39/58; indicating consumption of electrodes in arc lamps H05B 31/34])}

NOTES
1. This subclass covers measuring of position or displacement in terms of linear or angular dimensions.
2. In this subclass, the groups are distinguished by the means of measurement which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.
3. Attention is drawn to the Notes following the title of class G01.
4. Machines operated on similar principles to the hand-held devices specified in this subclass are classified with these devices.
5. Measuring arrangements or details thereof covered by two or more of groups G01B 3/00 - G01B 17/00 are classified in group G01B 21/00 if no single other group can be selected as being predominantly applicable.

Instruments as specified in the subgroups and characterised by the use of mechanical measuring means (arrangements for measuring particular parameters G01B 5/00; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material B65H 75/34)

· Templates for checking contours {([templates for mounting doors or windows E04F 21/007])}

Gauges with an open yoke and opposed faces i.e. calipers, in which the internal distance between the faces is fixed, although it may be preadjustable of limit-gauge type, i.e. "go/no-go" (G01B 3/40 takes precedence)
U G01B 3/46  · Plug gauges for internal dimensions with engaging surfaces which are at a fixed distance, although they may be preadjustable
G01B 3/50  · · of limit-gauge type, i.e. “go/no-go” (G01B 3/48 takes precedence)

U G01B 5/00  Measuring arrangements characterised by the use of mechanical means (instruments of the types covered by group G01B 3/00 per se G01B 3/00)
G01B 5/08  · for measuring diameters ((G01B 5/0035 takes precedence; measuring radius of curvature G01B 5/213))

U G01B 7/00  Measuring arrangements characterised by the use of electric or magnetic means
U G01B 7/02  · for measuring length, width or thickness (G01B 7/004, G01B 7/12 take precedence)
G01B 7/06  · · for measuring thickness ((measuring during the manufacture of coatings C23C 14/54))

U G01B 11/00 Measuring arrangements characterised by the use of optical means (instruments of the types covered by group G01B 9/00 per se G01B 9/00)
U G01B 11/24  · for measuring contours or curvatures
G01B 11/255 · · for measuring radius of curvature ((measuring diameter G01B 11/08))
U G01B 11/26  · for measuring angles or tapers; for testing the alignment of axes
G01B 11/27  · · for testing the alignment of axes ((means for centering or aligning a light guide within a ferrule G02B 6/3834))

G01B 13/00  Measuring arrangements characterised by the use of fluids ((pressure regulation G05D 16/00))
G01B 17/00  Measuring arrangements characterised by the use of subsonic, sonic or ultrasonic vibrations ((by sonar technique G01S 15/00))

U G01B 21/00 Measuring arrangements or details thereof in so far as they are not adapted to particular types of measuring means of the preceding groups

NOTE

Measuring arrangements or details thereof covered by two or more of groups G01B 3/00 - G01B 17/00 are classified in this group if no single other group can be selected as being predominantly applicable.

U G01B 21/02  · for measuring length, width, or thickness (G01B 21/10 takes precedence)
G01B 21/06  · · specially adapted for measuring length or width of objects while moving ((unwinding or rewinding apparatus incorporating length measuring devices B65H 16/025))

U G01B 21/10  · for measuring diameters
G01B 21/14  · · internal diameters ((of boreholes or wells E21B 47/08))

Project: N/A (G01C)

U G01C 5/00  Measuring height; Measuring distances transverse to line of sight; Levelling between separated points; Surveyors’ levels (G01C 3/20, G01C 3/30 take precedence; tracing profiles G01C 7/00; levels indicating inclination at a single point G01C 9/00)
G01C 5/02  · involving automatic stabilisation of the line of sight; (tilt compensation in general G12B; regulation of direction in general G05D 3/00)

G01C 9/00  Measuring inclination, e.g. by clinometers, by levels ((switches operated by inclination or orientation H01H 35/02))
U G01C 21/00  Navigation; Navigational instruments not provided for in preceding groups (measuring distance traversed on the ground by a vehicle G01C 22/00 ; measuring linear or angular speed or acceleration G01P ; control of position, course, altitude or attitude of vehicles G05D 1/00 ; traffic control systems G08G)

U G01C 21/26  · specially adapted for navigation in a road network

U G01C 21/34  · · Route searching; Route guidance

U G01C 21/36  · · · Input/output arrangements of navigation systems; {(Input arrangements for transferring data to be processed into a form capable of being handled by the computer, and output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements G06F 3/00 ; pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks, and accessories therefor G06F 3/033 ; interaction techniques for graphical user interfaces, e.g. interaction with windows, icons or menus G06F 3/048 ; Manipulating 3D models or images for computer graphics G06T 19/00)}

U G01C 22/00  Measuring distance traversed on the ground by vehicles, persons, animals, or other moving solid bodies, e.g. using odometers, using pedometers (counting mechanisms per se G06M)

G01C 22/02  · by conversion into electric waveforms and subsequent integration, e.g. using tachometer generator {(G01C 22/002 , G01C 22/004 , G01C 22/006 take precedence)}

Project: N/A (G01H)

G01H 11/00  Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties, (e.g. capacitance or reluctance (structural combination of musical instruments with microphones or other pick-up devices G10H 3/16, G10H 3/18, G10H 3/20))

Project: N/A (G01L)

U G01L 19/00  Details of, or accessories for, apparatus for measuring steady or quasi-steady pressure of a fluent medium insofar as such details or accessories are not special to particular types of pressure gauges

G01L 19/04  · Means for compensating for effects of changes of temperature ( , i.e. other than electric compensation (electric compensation G01L 9/025, G01L 9/045, G01L 9/065, G01L 9/085, G01L 9/105 or G01L 9/125))

Project: N/A (G01M)

G01M  TESTING STATIC OR DYNAMIC BALANCE OF MACHINES OR STRUCTURES; TESTING STRUCTURES OR APPARATUS NOT OTHERWISE PROVIDED FOR ((devices for testing the performance of portable percussive tools with fluid-pressure drive B25D 9/005))

NOTE
Attention is drawn to the Note following the title of Class G01.

WARNING
Subject matter covered by these groups is classified in the following CPC groups: - **G01M/38** covered by **G01M 1/14** and **G01M 1/30** and subgroups
U  G01M 1/00  Testing static or dynamic balance of machines or structures (balancing rotary bowls of centrifuges B04B 9/14; apparatus characterised by the means for holding wheels or parts thereof B60B 30/00; determining the stability factors of ships B63B; stabilising of aircraft B64C 17/00; control systems for balancing automatically in operation G05; balancing rotors of dynamo-electric machines H02K 15/16)

U  G01M 1/02  · Details of balancing machines or devices
U  G01M 1/04  · · Adaptation of bearing support assemblies for receiving the body to be tested ((tyre chucks in general G01M 17/021))

U  G01M 11/00  Testing of optical apparatus; Testing structures by optical methods not otherwise provided for

WARNING
Groups  G01M 11/30  do not correspond to former or future IPC groups. Concordance CPC:
IPC for these groups is as follows:  G01M 11/30  G01M 11/00

G01M 11/08  · Testing of mechanical properties (G01M 11/005 takes precedence)

Project: N/A (G01N)

U  G01N 1/00  Sampling; Preparing specimens for investigation

U  G01N 1/02  · Devices for withdrawing samples (for medical or veterinary purposes A61; obtaining samples of soil or well fluids E21B 49/00; collecting or conveying radioactive samples G01T 7/00, e.g. G01T 7/02, G01T 7/08)

G01N 1/10  · · in the liquid or fluent state ((burettes, pipettes B01L 3/02; Sampling of ground water E02D 1/06; metering by volume of fluids or fluent solid material G01F 11/00, G01F 13/00))

G01N 1/22  · · in the gaseous state ((specially adapted for biological material G01N 33/497; measuring breath flow A61B 5/087))

G01N 1/24  · · · Suction devices ((G01N 1/22 to G01N 1/2294 take precedence))

U  G01N 1/28  · Preparing specimens for investigation (including physical details of (bio-)chemical methods covered elsewhere, e.g. G01N 33/50, C12Q) (mounting specimens on microscopic slides G02B 21/34; means for supporting the objects or the materials to be analysed in electron microscopes H01J 37/20; laboratory gas handling apparatus B01L 5/00)

G01N 1/34  · · Purifying; Cleaning ((processes or apparatus for extracting or separating nucleic acids from biological samples C12N 15/1003))

U  G01N 3/00  Investigating strength properties of solid materials by application of mechanical stress (strain gauges G01B; measuring stress in general G01L)

NOTE
This group covers the stressing of materials not only below but also beyond the elastic limit, e.g. until breaking occurs.

G01N 3/60  · Investigating resistance of materials, e.g. refractory materials, to rapid heat changes ((thermal testing of structures or apparatus G01M 99/002))

U  G01N 5/00  Analysing materials by weighing, e.g. weighing small particles separated from a gas or liquid (G01N 9/00 takes precedence; weighing per se G01G)

G01N 5/02  · by absorbing or adsorbing components of a material and determining change of weight of the adsorbent, e.g. determining moisture content ((absorption bulbs B01D 53/00))
G01N 7/00 Analysing materials by measuring the pressure or volume of a gas or vapour

- by absorption, adsorption, or combustion of components and measurement of the change in pressure or volume of the remainder ((absorption bulbs B01D 53/00))
- by allowing the material to emit a gas or vapour, e.g. water vapour, and measuring a pressure or volume difference ((determining urea G01N 33/48742))

G01N 19/00 Investigating materials by mechanical methods (G01N 3/00 to G01N 17/00 take precedence)

- Measuring coefficient of friction between materials ((testing of tyres G01M 17/02; determinations of friction coefficient used in vehicle braking or traction control systems B60T 8/172))

G01N 21/00 Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible or ultra-violet light (G01N 3/00-G01N 19/00 take precedence)

NOTE
This group does not cover the investigation of spectral properties of light per se, or measurements of the properties of materials where spectral properties of light are sensed and primary emphasis is placed on creating, detecting or analysing the spectrum providing that the properties of the materials to be investigated are of minor importance (see also Note (4) after the title of class G01). Those subjects are covered by group G01J 3/00.

G01N 21/01 Arrangements or apparatus for facilitating the optical investigation

G01N 21/03 - Cuvette constructions

- (High pressure cuvettes; (G01N 21/0332 to G01N 21/15 take precedence))
- Moving of cuvettes or solid samples to or from the investigating station ((handling materials for automatic analysis G01N 35/00))

G01N 21/13 - Systems in which incident light is modified in accordance with the properties of the material investigated (where the material investigated is optically excited causing a change in wavelength of the incident light G01N 21/63)

G01N 21/25 - Colour; Spectral properties, i.e. comparison of effect of material on the light at two or more different wavelengths or wavelength bands

- using photo-electric detection (G01N 21/31 takes precedence)(circuits for computing concentration (logarithmic circuits G06G 7/24; photometric circuits in general G01J))
- Investigating relative effect of material at wavelengths characteristic of specific elements or molecules, e.g. atomic absorption spectrometry ((G01N 21/72 takes precedence))

G01N 21/35 - using infra-red light (G01N 21/38 takes precedence)

G01N 21/37 - using pneumatic detection ((opto-acoustic detection G01N 21/1702))

G01N 21/59 - Transmissivity (G01N 21/25 takes precedence)

G01N 21/61 - Non-dispersive gas analysers ((G01N 21/3504 takes precedence))

G01N 21/62 - Systems in which the material investigated is excited whereby it emits light or causes a change in wavelength of the incident light

G01N 21/63 - optically excited

G01N 21/636 - (using an arrangement of pump beam and probe beam; using the measurement of optical non-linear properties; (non-linear optics per se G02F 1/35))
· · · · Fluorescence; Phosphorescence
· · · · {Measuring fluorescence of fluorescent products of reactions or of fluorochrome labelled reactive substances, e.g. measuring quenching effects, using measuring “optrodes” (in vivo A61B 5/00; immunoassay G01N 33/53)}

· · · · Systems specially adapted for particular applications
· · · · in moving material, e.g. running paper or textiles (G01N 21/90, G01N 21/91, G01N 21/94 take precedence)
· · · · characterised by the flaw, defect or object feature examined
· · · · Optical defects in or on transparent materials, e.g. distortion, surface flaws {in conveyed flat sheet or rod (for other objects G01N 21/958)}
· · · · characterised by the material or shape of the object to be examined (G01N 21/89 to G01N 21/91, G01N 21/94 take precedence)
· · · · Inspecting transparent materials {or objects, e.g. windscreens (for conveyed flat sheet or rod G01N 21/896)}

Investigating or analysing materials by the use of wave or particle radiation not covered by G01N 21/00 or G01N 22/00, e.g. X-rays or neutrons (G01N 3/00 to G01N 17/00 take precedence; measuring stress in general G01L 1/00; measurement of nuclear or X-radiation G01T; introducing objects or materials into nuclear reactors, or removing them therefrom, or storing them after treatment therein G21C; construction or operation of X-ray apparatus or circuits therefor H05G)

· · · · by using diffraction of the radiation, e.g. for investigating crystal structure; by using reflection of the radiation
· · · · by means of diffraction cameras (G01N 23/201 takes precedence)
· · · · the radiation being neutrons {(G01N 23/205 takes precedence)}
· · · · by measuring secondary emission

NOTE
Devices per se are classified in the relevant places, e.g. H01J 37/00, H01J 49/00

· · · · by irradiating the sample with X-rays {or gamma-rays} and by measuring X-ray fluorescence {(G01N 23/2076 takes precedence)}

Investigating or analyzing materials by the use of thermal means (G01N 3/00 to G01N 23/00 take precedence)
· · · · by investigating changes of state or changes of phase; by investigating sintering {(investigating or analysing oils or hydrocarbon fluids by measuring cloud point or pour point G01N 33/2811)}

Investigating or analysing materials by the use of electric, electrochemical, or magnetic means (G01N 3/00 to G01N 25/00 take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials G01R)
· · · · by investigating the impedance of the material
· · · · by investigating resistance {(for measuring the amount of particles G01N 15/0656)}
· by investigating electrochemical variables; by using electrolysis or electrophoresis (investigating resistance to corrosion G01N 17/00; investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography, G01N 30/00; immunoelectrophoresis G01N 33/561; electrochemical processes or apparatus in general B01J; standard cells H01M 6/28)

G01N 27/27
· Association of two or more measuring systems or cells, each measuring a different parameter, where the measurement results may be either used independently, the systems or cells being physically associated, or combined to produce a value for a further parameter (e.g. electrochemical electrode arrays (gas sensor arrays G01N 33/0031))

G01N 27/28
· · Electrolytic cell components

G01N 27/30
· · · Electrodes, e.g. test electrodes; Half-cells (G01N 27/414 takes precedence)

G01N 27/327
· · · · Biochemical electrodes {electrical and mechanical details of in vitro measurements (chemical and biological details C12Q 1/00, G01N 33/543; in vivo A61B 5/00)}

G01N 27/403
· · Cells and electrode assemblies

G01N 27/406
· · · Cells and probes with solid electrolytes

G01N 27/407
· · · · for investigating or analysing gases {(G01N 27/411 takes precedence)}

G01N 27/416
· · Systems (G01N 27/27 takes precedence {for testing batteries G01R 31/36})

G01N 27/447
· · · using electrophoresis {{aspects concerning peptides or proteins C07K 1/26; for non-analytical purposes B01D 57/02; separating particles by dielectrophoresis B03C 5/00}}

G01N 27/62
· by investigating the ionisation of gases; by investigating electric discharges, e.g. emission of cathode (particle spectrometers per se H01J 49/00)

G01N 27/64
· · using wave or particle radiation to ionise a gas, e.g. in an ionisation chamber {{discharge tubes for measuring pressure of introduced gas or for detecting presence of gas H01J 41/02}}

G01N 27/72
· by investigating magnetic variables

G01N 27/74
· · of fluids (G01N 24/00 takes precedence)

G01N 27/76
· · · by investigating susceptibility {{measuring susceptibility G01R 33/16}}

G01N 27/82
· · · for investigating the presence of flaws

G01N 27/90
· · · using eddy currents {{for measuring thickness G01B 7/06}}

G01N 29/00
· Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object (G01N 3/00 to G01N 27/00 take precedence; measuring or indicating of ultrasonic, sonic or infrasonic waves in general G01H; systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, G01S 15/00; obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves G03B 42/06; {medical diagnosis by ultrasounds A61B 8/00; generating or transmitting mechanical or acoustic waves B06B, G10K; seismic or acoustic prospecting or detecting G01V 1/00})

G01N 29/04
· · Analysing solids (using acoustic emission techniques G01N 29/14)

G01N 29/06
· · Visualisation of the interior, e.g acoustic microscopy {{medical or veterinary diagnosis using sonic waves A61B 8/00; representation of acoustic wave distribution G01H 3/125, G01H 9/002; short-range imaging systems using reflection of acoustic waves G01S 15/8906}}
by measuring frequency or resonance of acoustic waves \{measuring frequency or resonant frequency of mechanical vibrations or acoustic waves in general G01H 1/06, G01H 3/04, G01H 13/00; acoustic resonators G10K 11/04; vibration or shock testing of structures G01M 7/00\}

using acoustic emission techniques \{echo of particles G01N 29/046; measuring mechanical vibrations or acoustic waves in solids in general G01H 1/00\}

Details, \{e.g. general constructional or apparatus details\}

Probes \{transducers for acoustic waves B06B, G10K; for measuring G01H\}

\{using the magnetostrictive properties of the material to be examined, e.g. electromagnetic acoustic transducers [EMAT]; (investigating the presence of flaws using eddy currents G01N 27/90, magnetostrictive transducers B06B 1/08, measuring magnetostrictive properties G01R 33/18)\}

Arrangements for orientation or scanning \{by relative movement of the head and the sensor (mechanical steering of sound transducers or their beams G10K 11/35)\}

providing acoustic coupling \{e.g. water (impedance matching G10K 11/02)\}

Processing the detected response signal, \{e.g. electronic circuits specially adapted therefor (digital signal processing per se G06F 17/00)\}

by spectral analysis, \{e.g. Fourier analysis (or wavelet analysis (spectral signal processing per se G06F 17/14))\}

Investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography \{G01N 3/00 to G01N 29/00 take precedence; separation for the preparation or production of components B01D 15/00, B01D 53/02, B01D 53/14; solid sorbent compositions in general B01J 20/00; ion-exchange in general B01J 39/00 to B01J 49/00\} \{or field flow fractionation (for preparation or production of components B01D 21/00, B01D 43/00, B01D 45/00 or B03C)\}

NOTE

In this group, the following term is used with the meaning indicated:

* "conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.

\ Column chromatography

\ Conditioning of the fluid carrier; Flow patterns

\ Flow patterns

\ using more than one column \{G01N 30/44 takes precedence\}

\ Detectors specially adapted therefor

\ Mass spectrometers \{mass spectrometers per se H01J 49/00\}

\ Optical detectors \{measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light G01J\}

\ Acoustical detectors \{measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves G01H\}

Investigating or analysing non-biological materials by the use of the chemical methods specified in the subgroup (testing the effectiveness or completeness of sterilisation procedures without using enzymes or microorganisms A61L 2/28; measuring or testing processes involving enzymes or micro-organisms C12Q 1/00); Apparatus specially adapted for such methods
G01N 31/02 · using precipitation (measuring deposition or liberation of materials from an electrolyte G01N 27/42)

G01N 33/00 Investigating or analysing materials by specific methods not covered by the preceding groups

G01N 33/15 · Medicinal preparations; (Physical properties thereof, e.g. dissolubility (drug screening with animal cells G01N 33/5008, drug screening with microorganisms C12Q 1/025))

G01N 33/18 · Water (treatment of water C02F)

G01N 33/22 · Fuels, explosives (liquid hydrocarbons G01N 33/28)

G01N 33/26 · oils; viscous liquids; paints; inks (G01N 33/22 takes precedence)

G01N 33/32 · paints; inks (investigating resistance to the weather, to corrosion, to light G01N 17/00)

G01N 33/48 · biological material, e.g. blood, urine (G01N 33/02 to G01N 33/14, G01N 33/26, G01N 33/44, G01N 33/46 take precedence; determining the germinating capacity of seeds A01C 1/02; Haemocytometers (counting blood corpuscles distributed over a surface by scanning the surface G06M 11/02)

G01N 33/483 · Physical analysis of biological material

G01N 33/487 · of liquid biological material

G01N 33/49 · Blood (taking blood samples A61B 5/15; chemical methods for determining blood cell populations G01N 33/5094; chemical analysis of blood groups or blood types G01N 33/80)

G01N 33/497 · of gaseous biological material, e.g. breath (for evaluating respiratory organs A61B 5/08)

G01N 33/50 · Chemical analysis of biological material, e.g. blood, urine; Testing involving biospecific ligand binding methods; Immunological testing (measuring or testing processes involving enzymes or micro-organisms, compositions or test papers therefor; processes for forming such compositions, condition responsive control in microbiological or enzymiological processes C12Q)

NOTES
1. The expression "involving", when used in relation to a material includes the testing for the material as well as employing the material as a determinant or reactant in a test for a different material.
2. In groups G01N 33/52 to G01N 33/96, in the absence of an indication to the contrary, an invention is also classified in the last appropriate place.
3. Documents relating to new peptides or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However, if the investigating or analysing aspects are of interest, the documents are classified in this group

G01N 33/52 · Use of compounds or compositions for colorimetric, spectrophotometric or fluorometric investigation, e.g. use of reagent paper (and including single- and multilayer analytical elements (immunological elements G01N 33/54386; involving labelled immunochemicals G01N 33/58; for haemoglobin or occult blood G01N 33/72))

G01N 33/53 · Immunoassay; Biospecific binding assay (preparations containing antigens or antibodies for therapeutic purposes A61K 39/00; haptons in general, see the relevant places in class C07; proteins in general C07K)

G01N 33/543 · with an insoluble carrier for immobilising immunochemicals

G01N 33/544 · · · · · the carrier being organic

G01N 33/545 · · · · · · Synthetic resin
G01N 33/546 · · · · · · as water suspendable particles {{not used, see G01N 33/54313}}
G01N 33/547 · · · · · · with antigen or antibody attached to the carrier via a bridging agent {{not used, see G01N 33/54353}}
G01N 33/549 · · · · · · with antigen or antibody entrapped within the carrier {{not used, see G01N 33/5436}}
G01N 33/563 · · · involving antibody fragments {{not used, see G01N 33/6857}}
G01N 33/569 · · · · for micro-organisms, e.g. protozoa, bacteria, viruses
G01N 33/571 · · · · · · for venereal disease, e.g. syphilis, gonorrhoea {{herpes G01N 33/56994 ; chlamydia G01N 33/56927}}
G01N 33/68 · · · involving proteins, peptides or amino acids {{involving lipoproteins G01N 33/92}}
G01N 33/80 · · · involving blood groups or blood types {or red blood cells (white blood cells G01N 33/56972)}
G01N 33/92 · · · involving lipids, e.g. cholesterol, lipoproteins, or their receptors (steroid hormones G01N 33/743)}

U G01N 35/00 Automatic analysis not limited to methods or materials provided for in any single one of groups G01N 1/00 to G01N 33/00; Handling materials therefor
G01N 35/02 · using a plurality of sample containers moved by a conveyer system past one or more treatment or analysis stations {{G01N 35/0098 and G01N 35/0099 take precedence}}
G01N 35/04 · Details of the conveyer system {{G01N 35/021 to G01N 35/028 take precedence}}
G01N 35/10 · Devices for transferring samples {or any liquids}to, in, or from, the analysis apparatus, e.g. suction devices, injection devices {{G01N 35/0099 takes precedence}}

U G01N 2333/00 Assays involving biological materials from specific organisms or of a specific nature
NOTE
In groups G01N 2333/47 to G01N 2333/994 indexing codes are assigned according to the chemical nature of the materials irrespective of the source organism.

U G01N 2333/195 · from bacteria
NOTE
In groups G01N 2333/20 to G01N 2333/365, where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.

U G01N 2333/315 · · from Streptococcus (G), e.g. Enterococci
G01N 2333/3156 · · from Streptococcus pneumoniae (Pneumococcus) (Streptokinase G01N 2333/3153)
U G01N 2333/90 · Enzymes; Proenzymes
NOTE
Enzymes are generally categorised below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.

U G01N 2333/902 · · Oxidoreductases (1.)
U G01N 2333/90245 · · acting on paired donors with incorporation of molecular oxygen (1.14)
G01N 2333/9027 · · · Miscellaneous (1.14.99) (not used)
Details of instruments or arrangements of the types included in groups G01R 5/00 to G01R 13/00 and G01R 31/00 (constructional details particular to (electromechanical) arrangements for measuring the electric consumption G01R 11/02)

General constructional details (details of a kind applicable to measuring arrangements not specially adapted for a specific variable G01D 7/00)

Measuring leads; Measuring probes (G01R 19/145, G01R 19/165 take precedence; end pieces for leads H01R 11/00)

Measuring probes (plugs, sockets or clips G01R 1/0408; testing of connections G01R 31/04; contacting IC’s for test purposes when probe design is not the essential feature G01R 31/2886; using radiation beam as probe G01R 31/302; end pieces for wires terminating in a probe H01R 11/18)

Non-contact-making probes (wireless interface with the DUT G01R 31/3025)

Multiple probes (G01R 1/06783, G01R 1/06794, G01R 1/071, G01R 1/072 take precedence)

Screening arrangements against electric or magnetic fields, e.g. against earth’s field (measuring shielding efficiency H05K 9/0069)

Arrangements for altering the indicating characteristic, e.g. by modifying the air gap (circuits G01R 15/005)

Modifications of instruments for temperature compensation (When measuring current or voltage G01R 19/32)

Electromechanical arrangements for measuring time integral of electric power (i.e. electric energy) or current, e.g. of consumption (other arrangements for measuring time integral of electric power or current G01R 22/00; Boards, panels, desks for energy meters, H02B 1/03; monitoring electric consumption of electrically-propelled vehicles B60L 3/00)

NOTE
For the definition of “arrangement” see Note (2) under G01R

Constructional details (applicable to electric measuring instruments in general G01R 1/00)

Arrangements for avoiding or indicating fraudulent use (measures against unauthorised operation of bolts, nuts or pins F16B 41/005; security seals G09F 3/03; preventing of tampering with detection circuits in signaling or alarm circuits G08B 29/046)

Arrangements for displaying electric variables or waveforms (display by mechanical displacement only G01R 5/00, G01R 7/00, G01R 9/00; recording frequency spectrum G01R 23/18)

Cathode-ray oscilloscopes; (Oscilloscopes using other screens than CRT’s, e.g. LCD’s; control arrangements or circuits for cathode-ray tube indicators G09G 1/00; cathode ray tubes H01J 31/00)

using modulation of a light beam otherwise than by mechanical displacement, e.g. by Kerr effect (visual indication of correct tuning H03J 3/14)

Details of measuring arrangements of the types provided for in groups G01R 17/00 to G01R 29/00 and G01R 33/00 to G01R 35/00 (details of instruments G01R 1/00; overload protection arrangements G01R 1/36)
Voltage dividers

Adaptations providing voltage or current isolation, e.g. for high-voltage or high-current networks (instrument transformers H01F 38/20 ; voltage dividers G01R 15/04 ; (means for converting the output of a sensing member to another variable G01D 5/00 ; visible signalling arrangements or devices G08B 5/00 ; transmission systems for measured values G08C 17/00 , G08C 23/00))

(Measuring arrangements for current not covered by other subgroups of G01R 15/14, e.g. using current dividers, shunts, or measuring a voltage drop (if no voltage isolation is involved G01R 1/203 or G01R 19/0092))

using capacitive devices (circuits constituting a voltage divider G01R 15/06)

using galvano-magnetic devices, e.g. Hall-effect devices,(i.e. measuring a magnetic field via the interaction between a current and a magnetic field, e.g. magneto resistive or Hall effect devices (electromechanical such devices, G01R 5/00 , G01R 7/00 , G01R 9/00 ; measuring magnetic fields G01R 33/02))

using light-emitting devices, e.g. LED, optocouplers ((G01R 31/31901 takes precedence))

Arrangements for measuring currents or voltages or for indicating presence or sign thereof (G01R 5/00 takes precedence; (voltage measurements using secondary electron emission when testing electronic circuits G01R 31/305) ; for measuring bio-electric currents or voltages A61B 5/04)

Measuring effective values, i.e. root-mean-square values

using thermoconverters ((using ac-dc conversion by means of thermocouples or other heat sensitive elements G01R 19/225))

Measuring rate of change ((emergency protective circuit arrangements responsive to the rate of change of electrical quantities H02H 3/44))

Indicating the presence of current or voltage ((measuring probes in general G01R 1/06 ; indicating continuity or short circuits in electric apparatus or lines or components G01R 31/024))

Indicating the presence of current ((see provisionally also G01R 19/145))

Indicating the presence of voltage ((see provisionally also G01R 19/145))

Indicating that current or voltage is either above or below a predetermined value or within or outside a predetermined range of values (circuits with regenerative action, e.g. Schmitt trigger H03K 3/00 ; threshold switches H03K 17/00)

(characterised by the application (contains no documents))

(Logic probes, i.e. circuits indicating logic state (high, low, O); (modifications of electronic switches or gates for indicating state of switch H03K 17/18))

(Circuits and arrangements for comparing voltage or current with one or several thresholds and for indicating the result not covered by subgroups G01R 19/16504 , G01R 19/16528 , G01R 19/16533(contains no documents))
G01R 19/1659 · · · (to indicate that the value is within or outside a predetermined range of values (window) (G01R 19/16514, G01R 19/16519, G01R 19/16528 and G01R 19/16533 take precedence))

G01R 19/18 · using conversion of dc into ac, e.g. with choppers ((DC amplifiers with modulators at input and demodulator at output H03F 3/38))

G01R 19/20 · · · using transducers (i.e. a magnetic core transducer the saturation of which is cyclically reversed by an AC source on the secondary side (other DC current transducers, e.g. using the 0-flux principle, G01R 15/185; magnetic amplifiers H03F 9/00))

G01R 19/25 · using digital measurement techniques (arrangements for displaying measured electric variables in digital form G01R 13/02 (Analogue/digital conversion H03M))

G01R 19/2503 · · · (for measuring voltage only, e.g. digital volt meters (DVM’s) (G01R 19/2506 to G01R 19/257 take precedence))

G01R 19/2506 · · · (Arrangements for conditioning or analysing measured signals, e.g. for indicating peak values (G01R 19/003 takes precedence); Details concerning sampling, digitizing or waveform capturing (displaying waveforms G01R 13/00; analog sampling G01R 19/0053))

U G01R 23/00 Arrangements for measuring frequencies; Arrangements for analysing frequency spectra (frequency discriminators H03D; { high frequency probes G01R 1/06772})

G01R 23/02 · Arrangements for measuring frequency, e.g. pulse repetition rate ((using vibrating reeds G01R 9/04))Arrangements for measuring period of current or voltage (measuring short-time intervals G04F)

G01R 23/16 · Spectrum analysis; Fourier analysis {{computing with Fourier series or Walsh functions G06F 17/14, G06G 7/19; spectral data processing}}

G01R 23/20 · · · Measurement of non-linear distortion, e.g. harmonics or noise, (G01R 31/31708 takes precedence; noise figure G01R 29/26)

G01R 27/00 Arrangements for measuring resistance, reactance, impedance, or electric characteristics derived therefrom {{measuring super-conductive properties G01R 33/1238}}

U G01R 29/00 Arrangements for measuring or indicating electric quantities not covered by groups G01R 19/00 to G01R 27/00

G01R 29/08 · Measuring electromagnetic field characteristics {{measuring electrostatic fields G01R 29/12; for determining a voltage G01R 15/14; measuring magnetic fields G01R 33/00; Measuring or estimating received signal strength H04B 17/318})

G01R 29/26 · Measuring noise figure; Measuring signal-to-noise ratio (Measuring jitter, i.e. phase noise, (distortion G01R 23/20; noise measuring in individual transistors G01R 31/2616, G01R 31/2626))

U G01R 31/00 Arrangements for testing electric properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere (measuring leads, measuring probes G01R 1/06; { measuring superconductive properties G01R 33/1238}; data processing equipment for testing or function monitoring G06F 15/20B}; indicating electrical condition of switchgear or protective devices H01H 71/04, H01H 73/12, H02B 11/10, H02H 3/04; testing or measuring semiconductors or solid state devices during manufacture H01L 22/00; testing substation equipment, e.g. mobile phones H04M 1/24; testing or monitoring of control systems G05B 23/02; { testing or monitoring transmitters or receivers H04B 17/00})
G01R 31/02 · Testing of electric apparatus, lines or components, for short-circuits, discontinuities, leakage (of current), or incorrect line connection (G01R 31/001, G01R 31/005, G01R 31/01, G01R 31/08, G01R 31/12, G01R 31/24, G01R 31/26, G01R 31/28, G01R 31/327, G01R 31/34, G01R 31/36, G01R 31/40, G01R 31/44 take precedence; measuring electromagnetic field leakage G01R 29/0821; testing of sparking plugs H01T 13/58))

G01R 31/04 · · Testing connections, e.g. of plugs, of non-disconnectable joints (G01R 31/317 takes precedence; testing of connections in integrated circuits, chip-to-lead connections, bond wires G01R 31/2853)

G01R 31/046 · · · (of connections between components and printed circuit boards (PCB’s) (G01R 31/043 takes precedence))

G01R 31/12 · Testing dielectric strength or breakdown voltage; (Testing or monitoring effectiveness or level of insulation, e.g. of a cable or of an apparatus, for example using partial discharge measurements; Electrostatic testing (G01R 31/06, G01R 31/08 and G01R 31/327 take precedence; measuring in plasmas G01R 19/0061; Measuring dielectric constants G01R 27/2617; ESD, EMC or EMP testing of circuits G01R 31/002))

G01R 31/14 · · Circuits therefor, (e.g. for generating test voltages, sensing circuits (G01R 31/1209 to G01R 31/1227 take precedence; for testing switches G01R 31/327))

U G01R 31/26 · Testing of individual semiconductor devices (testing or measuring during manufacture or treatment H01L 22/00; testing of photovoltaic devices H02S 50/10)

G01R 31/265 · · Contactless testing ((of circuits, also in wafer-form G01R 31/302))

G01R 31/27 · · Testing of devices without physical removal from the circuit of which they form part, e.g. compensating for effects surrounding elements ((testing printed circuit boards G01R 31/2801))

U G01R 31/28 · Testing of electronic circuits, e.g. by signal tracer ((EMC, EMP or similar testing of electronic circuits G01R 31/002); testing for short-circuits, discontinuities, leakage or incorrect line connection G01R 31/02; checking computers (or computer components) G06F 11/00; checking static stores for correct operation G11C 29/00; (testing receivers or transmitters of transmission systems H04B 17/00))

G01R 31/2801 · · (Testing of printed circuits, backplanes, motherboards, hybrid circuits or carriers for multichip packages (MCP) (G01R 31/318508 takes precedence; contactless testing G01R 31/302; testing contacts or connections G01R 31/04))

G01R 31/2851 · · (Testing of integrated circuits (IC) (G01R 31/317 takes precedence; testing individual devices G01R 31/26; testing printed circuits G01R 31/2801))

G01R 31/2894 · · · (Aspects of quality control (QC) (G01R 31/31718 takes precedence; program control for QC G05B 19/41875))

U G01R 31/302 · · Contactless testing (non contact-making probes G01R 1/07) ((G01R 31/04 takes precedence))

G01R 31/305 · · · using electron beams ((investigating or analysing materials by measuring photoelectric effect G01N 23/227))

G01R 31/308 · · · using non-ionising electromagnetic radiation, e.g. optical radiation ((investigating or analysing materials by the use of optical means G01N 21/00; image analysis G06T 7/00))

G01R 31/311 · · · of integrated circuits ((G01R 31/31728 takes precedence))

G01R 31/316 · · Testing of analog circuits ((G01R 31/2851 takes precedence))

G01R 31/3167 · · Testing of combined analog and digital circuits ((testing ADC’s H03M 1/1071))
Testing of digital circuits

WARNING
The following subgroups of G01R 31/317 are not complete due to an ongoing reorganisation: G01R 31/31702, G01R 31/31708, G01R 31/31711, G01R 31/31717, G01R 31/31718, G01R 31/31728, G01R 31/31901. See also G01R 31/317 and its other subgroups.

Functional testing (G01R 31/3177 takes precedence)

Tester hardware, i.e. output processing circuit (logic analyzers G01R 31/3177, Memory tester hardware G11C 29/56)

with comparison between actual response and known fault free response (receiver details G01R 31/31924)

Apparatus for testing electrical condition of accumulators or electric batteries, e.g. capacity or charge condition (accumulators combined with arrangements for measuring, testing or indicating condition H01M 10/48; circuit arrangements for charging, or depolarising batteries or for supplying loads from batteries H02J 7/00; Coulomb meters G01R 22/00; indicating the condition of the power supply in clocks or watches G04C 10/04; methods for controlling fuel cells H01M 8/04298)

NOTE
This group covers arrangements for measuring, testing or indicating electrical conditions or variables of accumulators or electric batteries. Accumulators combined with arrangements for measuring, testing or indicating condition, or arrangements for measuring, testing or indicating conditions or variables other than electrical, e.g. level or density of battery electrolyte, are covered by the group H01M 10/48 and subgroups.

Monitoring, i.e. measuring or determining some variables continuously or repeatedly over time, e.g. current, voltage, temperature, state-of-charge [SoC] or state-of-health [SoH] (G01R 31/3627, G01R 31/3644 take precedence)

Testing, i.e. making a one-time determination of some variables, e.g. testing ampere-hour charge capacity (G01R 31/3644 takes precedence)

for determining the ampere-hour charge capacity or state-of-charge (SoC) (G01R 31/3631 takes precedence)

Arrangements or instruments for measuring magnetic variables

Measuring direction or magnitude of magnetic fields or magnetic flux (G01R 33/20 takes precedence; measuring direction or magnitude of the earth’s field for navigation or surveying G01C; for prospecting, for measuring the magnetic field of the earth G01V 3/00)

NOTE
Groups G01R 33/022, G01R 33/10 take precedence over groups G01R 33/025 to G01R 33/09.

Compensating stray fields ((compensating compasses G01C 17/38) (G01R 33/0017 takes precedence))

using magneto-optic devices, e.g. Faraday, (Cotton-Mouton effect (magneto-optics in general G02F 1/09))

using superconductive devices ((manufacture of superconducting elements H01L 39/00))

using permanent magnets, e.g. balances, torsion devices ((electro-dynamic magnetometers G01R 33/28))
G01R 33/06 · · using galvano-magnetic devices, e.g. Hall effect devices; using magneto-resistive devices \{\text{(manufacture of galvano-magnetic elements H01L 43/00)}\}

U G01R 33/20 · · involving magnetic resonance (medical aspects A61B 5/055 ; magnetic resonance gyrometers G01C 19/00\(i\) investigating materials using NMR G01N 24/00 ; prospecting or detecting using NMR G01V 3/00\(i\))

U G01R 33/24 · · for measuring direction or magnitude of magnetic fields or magnetic flux

G01R 33/26 · · · using optical pumping \{\text{(optical pumping in general G01N 24/006)}\}

U G01R 33/28 · · Details of apparatus provided for in groups G01R 33/44 to G01R 33/64

WARNING
Groups G01R 33/281 - G01R 33/288 are not complete pending reclassification. See also this group

U G01R 33/32 · · · Excitation or detection systems, e.g. using radio frequency signals

G01R 33/34 · · · · Constructional details, e.g. resonators,\(s\) specially adapted to MR (aerials in general H01Q)

G01R 33/44 · · using nuclear magnetic resonance [NMR] \{\text{(G01R 33/24 , G01R 33/62 take precedence)}\}

WARNING
Groups G01R33/44B - G01R 33/443 are not complete pending reclassification. See also this group

U G01R 33/48 · · · NMR imaging systems

U G01R 33/54 · · · · Signal processing systems, e.g. using pulse sequences,\(\{\text{Generation or control of pulse sequences (in general H03K); Operator Console)}\)

G01R 33/56 · · · · · Image enhancement or correction, e.g. subtraction or averaging techniques,\(\{\text{e.g. improvement of signal-to-noise ratio and resolution (image data processing in general G06T)}\)

G01R 35/00 Testing or calibrating of apparatus covered by the preceding groups \{\text{(G01R 31/31901 takes precedence)}\}

Project: N/A (G01S)

U G01S 1/00 Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions, or position lines fixed relatively to the beacon transmitters; Receivers co-operating therewith (position fixing by co-ordinating a plurality of determinations of direction or position lines G01S 5/00)

U G01S 1/02 · using radio waves \{\text{(G01S 19/00 takes precedence)}\)

G01S 1/08 · · Systems for determining direction or position line \{\text{(aerial arrangements for changing or varying the orientation or the shape of the directional pattern H01Q 3/00 ; combinations of different interacting units for giving a desired directional characteristic H01Q 21/29 ; aerials or aerial systems providing at least two radiation patterns H01Q 25/00)}\)

G01S 1/20 · · · using a comparison of transit time of synchronised signals transmitted from non-directional aerials or aerial systems spaced apart, i.e. path-difference systems \{\text{(synchronisation in general H03L 7/00)}\)

U G01S 3/00 Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic, or electromagnetic waves, or particle emission, not having a directional significance, are being received (position fixing by co-ordinating a plurality of determinations of direction or position lines G01S 5/00 ; for geophysical measurement G01C ; telescope mountings G02B)

U G01S 3/02 · using radio waves
Systems for determining direction or deviation from predetermined direction \((\text{aerial arrangements for changing or varying the orientation or the shape of the directional pattern } \text{H01Q 3/00}; \text{combinations of different interacting aerial units for giving a desired directional characteristic } \text{H01Q 21/29}; \text{aerials or aerial systems providing at least two radiation patterns } \text{H01Q 25/00})\)

Position-fixing by co-ordinating two or more direction or position line determinations; Position-fixing by co-ordinating two or more distance determinations \((\text{using active systems } \text{G01S 13/00}, \text{G01S 15/00}, \text{G01S 17/00})\)

Details of systems according to groups \(\text{G01S 13/00}, \text{G01S 15/00}, \text{G01S 17/00}\)\((\text{apparatus for measuring unknown time-intervals by electronic means, e.g. Vernier method } \text{G04F 10/00})\)

Of systems according to group \(\text{G01S 13/00}\)

Display arrangements \(\text{G01S 7/00}\)

Cathode-ray tube displays \(\text{G01S 7/06}\)

Providing two-dimensional and co-ordinated display of distance and direction \((\text{in general } \text{G01R 13/20})\)

Stereoscopic displays; Three-dimensional displays; Pseudo-three-dimensional displays \((\text{in general } \text{G01R 13/206})\)

Producing cursor lines and indicia by electronic means \((\text{in general } \text{G01R 13/30})\)

Details of pulse systems \((\text{short-range imaging } \text{G01S 7/52017}; \text{methods or devices for transmitting, conducting or directing sound } \text{G10K 11/18})\)

Extracting wanted echo signals \((\text{Doppler systems } \text{G01S 15/50})\)

Gain of receiver varied automatically during pulse-recurrence period \((\text{for seismic signals } \text{G01V 1/245})\)

Details of non-pulse systems \((\text{short-range imaging } \text{G01S 7/52017})\)

Counter-measures or counter-counter-measures, e.g. jamming, anti-jamming \((\text{in general } \text{H04K})\)

Display arrangements \((\text{short-range imaging } \text{G01S 7/52053})\)

Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified \((\text{using acoustic waves } \text{G01S 15/00}; \text{using electromagnetic waves other than radio waves } \text{G01S 17/00})\)

NOTES
1. This group covers:
   - systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;
• systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.

2. This group does not cover:
   • systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00;
   • systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00.

U G01S 13/02 Systems using reflection of radio waves, e.g. primary radar systems; Analogous systems
U G01S 13/50 · · Systems of measurement based on relative movement of target
G01S 13/52 · · · Discriminating between fixed and moving objects or between objects moving at different speeds (coherent receivers G01S 7/288)
U G01S 13/522 · · · using transmissions of interrupted pulse modulated waves
U G01S 13/524 · · · · based upon the phase or frequency shift resulting from movement of objects, with reference to the transmitted signals, e.g. coherent MTI (coherent receivers G01S 7/288)
G01S 13/5248 · · · · · (combining a coherent MTI processor with a zero Doppler processing channel and a clutter mapped memory, e.g. MTD (Moving target detector), (area MTI G01S 13/538))
U G01S 13/526 · · · · · performing filtering on the whole spectrum without loss of range information, e.g. using delay line cancellers or comb filters; (G01S 13/5244 takes precedence)
G01S 13/56 · · · for presence detection ((presence detection using near field arrangements G01V 3/00, e.g. G01V 3/08, G01V 3/12; burglar, theft or intruder alarms with electrical actuation G08B 13/22 - G08B 13/26))
G01S 13/58 · · · Velocity or trajectory determination systems; Sense-of-movement determination systems (systems applied to the controlling of traffic G01S 13/92)
G01S 13/62 · · · Sense-of-movement determination (G01S 13/589 takes precedence)
U G01S 13/74 · Systems using reradiation of radio waves, e.g. secondary radar systems; Analogous systems
U G01S 13/76 · · wherein pulse-type signals are transmitted
G01S 13/762 · · · (with special measures concerning the radiation pattern, e.g. S.L.S. (aerials or aerial systems providing at least two radiation patterns e.g. providing sum and difference patterns, H01Q 25/00))
G01S 13/78 · · · discriminating between different kinds of targets, e.g. IFF-radar, i.e. identification of friend or foe (G01S 13/75, G01S 13/767 take precedence)
G01S 13/86 · Combinations of radar systems with non-radar systems, e.g. sonar, direction finder (Combinations of sonar systems with non-sonar or non-radar systems G01S 15/025; combination of lidar systems with systems other than lidar, radar or sonar G01S 17/023)

U G01S 15/00 Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems

NOTES
1. This group covers:
   • systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with
the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;
• systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.

2. This group does not cover:
• systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00;
• systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00.

U G01S 15/02 · using reflection of acoustic waves (G01S 15/66 takes precedence)
U G01S 15/50 · · Systems of measurement, based on relative movement of the target
G01S 15/58 · · · Velocity or trajectory determination systems; Sense-of-movement determination systems ((velocity measurement in imaging systems G01S 15/8979))
G01S 15/62 · · · Sense-of-movement determination ((G01S 15/588 takes precedence))
G01S 15/74 · Systems using reradiation of acoustic waves, e.g. IFF, i.e. identification of friend or foe {{(teaching or practice apparatus for gun-arming or gun-laying using reflecting targets or active targets F41G 3/26)}

U G01S 17/00 Systems using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. lidar systems (photogrammetry or videogrammetry G01C 11/00)

NOTE
The note after group G01S 13/00 also applies to this group.

G01S 17/74 · Systems using reradiation of electromagnetic waves other than radio waves, e.g. IFF, i.e. identification of friend or foe {{(teaching or practice apparatus for gun-arming or gun-laying using reflecting targets or active targets F41G 3/26)}

U G01S 19/00 Satellite radio beacon positioning systems; Determining position, velocity or attitude using signals transmitted by such systems

NOTE
In this group, or in the patent documents classified in this group, the following abbreviations are often used:
• PDOP = Position Dilution of Precision
• RAIM = Receiver Autonomous Integrity Monitoring

U G01S 19/01 · Satellite radio beacon positioning systems transmitting time-stamped messages, e.g. GPS [Global Positioning System], GLONASS [Global Orbiting Navigation Satellite System] or GALILEO

U G01S 19/13 · · Receivers
G01S 19/24 · · · Acquisition or tracking (or demodulation) of signals transmitted by the system {{(synchronisation aspects of direct sequence spread spectrum modulation H04B 1/7073)}}
G01S 19/29 · · · carrier, (including Doppler), related ((G01S 19/246 takes precedence))
G01S 19/30 · · · code related ((G01S 19/246 takes precedence))
Measuring X-radiation, gamma radiation, corpuscular radiation, or cosmic radiation (G01T 3/00, G01T 5/00 take precedence)

Dosimeters (G01T 1/15 takes precedence, measuring exposure time to X-rays H05G 1/28)

Luminescent dosimeters

Thermo-luminescent dosimeters ((thermo-luminescent compositions C09K 11/00))

Measuring radiation intensity (G01T 1/29 takes precedence; self-powered detectors G01T 3/006; using an ionisation chamber filled with a liquid or solid, e.g. frozen liquid, dielectric G01T 3/008)

Application in the field of nuclear medicine, e.g. in vivo counting ((apparatus for radiation diagnosis A61B 6/00))

Whole body counters ((hand or feet contamination measurement G01T 1/167; lung, brain, thyroid, kidney or the like counting G01T 1/16))

Scintigraphy (radioisotopes G21G 4/00; tracers G21H 5/00; measurement of spatial distribution G01T 1/2914; apparatus for radiation diagnosis in different planes A61B 6/02)

involving relative movement between detector and subject ((scanners in general without using scintigraphy G01T 1/2964))

Processing methods of scan data, e.g. involving contrast enhancement, background reduction, smoothing, motion correction, dual radio-isotope scanning, computer processing (for measuring spatial distribution of radiation G01T 1/2992; general purpose image data processing G06T 1/00; computerized tomography G06T 11/003; Ancillary equipment (colour printers G01T 1/1666))

Exploration, location of contaminated surface areas (prospecting by the use of nuclear radiation e.g. of natural or induced radioactivity G01V 5/00)(in situ measurement, e.g. floor contamination monitor (directional detectors G01T 1/2907))

Circuit arrangements not adapted to a particular type of detector ((pulse-selection circuits H03K, G01R))

with resistance detectors ((photoresistors H01L 31/00))

with secondary-emission detectors (secondary-electron-emitting electrodes in general H01J 1/32)(optionally combined with scintillation counters (secondary emission tubes H01J 43/00))

Measurement performed on radiation beams, e.g. position or section of the beam; Measurement of spatial distribution of radiation (scintigraphy G01T 1/164; mass-spectrometers H01J 49/025)

(Measurement of spatial distribution of radiation)

{In depth localisation e.g. using positron emitters; Tomographic imaging (longitudinal and transverse section imaging; apparatus for radiation diagnosis sequentially in different planes, steroscopic radiation diagnosis); (using external radiation sources A61B 6/02)}

Measuring half-life of a radioactive substance ((period meters for nuclear fission reactors G21C 17/14))

Measuring spectral distribution of X-rays or of nuclear radiation {spectrometry (pulse selection circuits per se H03K; investigation of materials by radiation diffraction G01N 23/20; spectrometer tubes H01J 49/00)}

Particle discrimination and measurement of relative mass, e.g. by measurement of loss of energy with distance (dE/dx) ((constructional details of semiconductor detectors therefor H01L 31/00))
G01T 1/40 · · Stabilisation of spectrometers {(circuits specially adapted for scintillation detectors G01T 1/208)}

U G01T 5/00 Recording of movements or tracks of particles (spark chambers H01J 47/00); Processing or analysis of such tracks

U G01T 5/12 · · Circuit arrangements with multi-wire or parallel-plate chambers, e.g. spark chambers (tubes per se H01J 47/00)

U G01T 5/122 · · · (for readout of each individual wires; (readout in such chambers per se H01J 47/16); for processing the output signals)

U G01T 7/00 Details of radiation-measuring instruments

G01T 7/02 · · Collecting means for receiving or storing samples to be investigated (and possibly directly transporting the samples to the measuring arrangement; particularly for investigating radioactive fluids (sampling, preparing specimens for investigation in general G01N 1/00, G01N 1/02; shielded cells or rooms structurally combined with manipulatin devices G21F; measuring of chromatographically separated samples G01N 30/00 to G01N 30/96))

G01T 7/08 · · Means for conveying samples received {(i.e. sample changers G01N 35/00)}

Project: N/A (G01V)

U G01V 3/00 Electric or magnetic prospecting or detecting (by optical means G01V 8/00); Measuring magnetic field characteristics of the earth, e.g. declination, deviation (for navigation, for surveying G01C; measuring direction or magnitude of magnetic fields or magnetic flux in general G01R 33/02)

G01V 3/12 · · · operating with electromagnetic waves {(operating with millimetre waves G01V 8/005)}

U G01V 3/15 · · specially adapted for use during transport, e.g. by a person, vehicle or boat

G01V 3/17 · · · operating with electromagnetic waves {(operating with millimetre waves G01V 8/005)}

U G01V 5/00 Prospecting or detecting by the use of nuclear radiation, e.g. of natural or induced radioactivity (determining the properties of materials G01N; measuring nuclear radiation G01T)

WARNING Pending reclassification, the subgroups of this group are not complete; see also this group

U G01V 5/04 · · · specially adapted for well-logging

G01V 5/08 · · · using primary nuclear radiation sources or X-rays {(e.g. for inducing radioactivity; investigating or analysing materials by the use of wave or particle radiation, e.g. X-rays, neutrons G01N 23/00)}

G01V 5/10 · · · using neutron sources {(neutron generating tubes H05H 5/00; neutron sources using isotopes G21G 4/00)}

G01V 5/12 · · · using gamma or X-ray sources {(gamma sources using isotopes G21G 4/00; X-ray tubes H01J 35/00)}

Project: N/A (G02B)

U G02B 3/00 Simple or compound lenses (artificial eyes A61F 2/14; spectacle lenses or contact lenses for the eyes G02C; watch or clock glasses G04B 39/00)

U G02B 3/02 · · with non-spherical faces (G02B 3/10 takes precedence)

G02B 3/08 · · · with discontinuous faces, e.g. Fresnel lens {(diffractive Fresnel lenses G02B 5/1876)}
U G02B 5/00 Optical elements other than lenses (light guides G02B 6/00; optical logic elements G02F 3/00)

G02B 5/08 · Mirrors {(vehicle mirrors involving special optical features B6OR 1/08)}

G02B 5/18 · Diffraction gratings {(holographic optical elements G02B 5/32, G03H; integrally combined with optical fibres G02B 6/02057; for coupling light guides G02B 6/34; integrally combined with optical integrated light guides G02B 6/12; grating systems G02B 27/44)}

U G02B 5/20 · Filters (polarising elements G02B 5/30; {manufacturing optical filters by photographic processes G03C 7/12, by lithographic processes G03F 7/0007})

G02B 5/22 · · Absorbing filters {{G02B 5/201 to G02B 5/208 take precedence}}

U G02B 6/00 Light guides

U G02B 6/02 · Optical fibre with cladding {with or without a coating}{(mechanical structures for providing tensile strength and external protection G02B 6/44)}

G02B 6/028 · · with core or cladding having graded refractive index {{G02B 6/02033, G02B 6/02295 take precedence}}

G02B 6/036 · · core or cladding comprising multiple layers {{multicore optical fibres G02B 6/02042; microstructured properties G02B 6/02295; omniguide fibres G02B 6/233}}

U G02B 6/10 · of the optical waveguide type {G02B 6/02, G02B 6/24 take precedence; devices or arrangements for the control of light by electric, magnetic, electromagnetic or acoustic means G02F 1/00; transferring the modulation of modulated light G02F 2/00; optical logic elements G02F 3/00; optical analogue/digital converters G02F 7/00; stores using opto-electronic devices G11C 11/42; (using electro-optical elements G11C 13/047); electric waveguides H01P; transmission of information by optical means H04B 10/00; multiplex systems H04J 14/00)}

U G02B 6/12 · · of the integrated circuit kind (production or processing of single crystals C30B; electric integrated circuits H01L 27/00{ coupling fibres and integrated optical circuits G02B 6/30})

G02B 6/126 · · using polarisation effects {{G02B 6/1226 takes precedence}}

U G02B 6/24 · Coupling light guides {for electric waveguides H01P 1/00}

U G02B 6/26 · · Optical coupling means {G02B 6/36, G02B 6/42 take precedence}

G02B 6/32 · · having lens focusing means {positioned between opposed fibre ends (with lens being an integral part of the single fibre end G02B 6/262)}

G02B 6/34 · · · utilising prism or grating {{G02B 6/293 takes precedence}}

U G02B 7/00 Mountings, adjusting means, or light-tight connections, for optical elements

G02B 7/02 · for lenses {{ supports for magnifying lenses G02B 25/002}}

G02B 7/14 · · adapted to interchange lenses {{G02B 7/027 takes precedence}}

U G02B 7/18 · for prisms; for mirrors

U G02B 7/182 · · for mirrors {{G02B 7/181 takes precedence; mounting of MEMS mirrors, e.g. DMDs, G02B 26/0833; optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light G02B 26/00; {mirror arrangements in vehicles B6OR 1/02)}}

U G02B 7/185 · · · with means for adjusting the shape of the mirror surface (mirrors with curved faces G02B 5/10) {not in use, see G02B 26/06, G02B 26/0825)}

G02B 7/188 · · · · Membrane mirrors {{not in use, see G02B 26/06, G02B 26/0825}}

U G02B 7/192 · · · with means for minimising internal mirror stresses {not in use}

G02B 7/195 · · · · Fluid-cooled mirrors {{not in use, see G02B 7/181}}
G02B 7/198  · · · with means for adjusting the mirror relative to its support {(not in use, see G02B 7/1822 and subgroups)}

U G02B 7/28  · Systems for automatic generation of focusing signals (measuring distance per se G01C, G01S; using such signals to control focus of particular apparatus, e.g. G03B, G03F,(H04N)}

U G02B 7/30  · · · using parallactic triangle with a base line

G02B 7/32  · · · using active means, e.g. light emitter {(including both an active and a passive focus detecting device G02B 7/285; using ultrasound G02B 7/40)}

G02B 7/36  · · · using image sharpness techniques, e.g. image processing techniques for generating autofocus signals (in cameras having a solid state image sensor H04N 5/23212; image data processing per se G06T)}

G02B 9/00  Optical objectives characterised both by the number of the components and their arrangements according to their sign, i.e. + or - (G02B 15/00 takes precedence)

U G02B 13/00  Optical objectives specially designed for the purposes specified below (with variable magnification(in general)G02B 15/00)

NOTE
Unless specified in the title of the subgroups, this group and its subgroups do not cover objectives comprising reflecting surfaces, which are covered by G02B 17/06, G02B 17/08 and their subgroups

G02B 13/18  · with lenses having one or more non-spherical face, e.g. for reducing geometrical aberration {(G02B 13/002 takes precedence)}

U G02B 17/00  Systems with reflecting surfaces, with or without refracting elements (microscopes G02B 21/00; telescopes, periscopes G02B 23/00; for beam splitting or combining G02B 27/10; for optical projection G02B 27/18)

U G02B 17/02  · Catoptric systems, e.g. image erecting and reversing system

G02B 17/06  · · using mirrors only (i.e. having only one curved mirror (used in non-imaging applications G02B 19/00))

G02B 17/08  · Catadioptric systems {(used in non-imaging applications G02B 19/00)}

U G02B 21/00  Microscopes (eyepieces G02B 25/00; polarising systems G02B 27/28; measuring microscopes G01B 9/04; microtomes G01N 1/06; scanning-probe techniques or apparatus G01Q)

G02B 21/16  · adapted for ultra-violet illumination; (Fluorescence microscopes (G02B 21/0076 takes precedence))

G02B 21/36  · arranged for photographic purposes or projection purposes (G02B 21/18 takes precedence)(or digital imaging or video purposes including associated control and data processing arrangements (image data processing per se G06T})

U G02B 23/00  Telescopes, e.g. binoculars; Periscopes; Instruments for viewing the inside of hollow bodies (diagnostic instruments A61B); Viewfinders (objectives G02B 9/00, G02B11/00, G02B 15/00, G02B 17/00; eyepieces G02B 25/00); Optical aiming or sighting devices (non-optical aspects of weapon aiming or sighting devices F41G)

U G02B 23/02  · involving prisms or mirrors (G02B 23/14 takes precedence)

G02B 23/08  · · Periscopes {{arrangements on floating structures of underwater viewing devices B63C 11/49; arrangement of visual watch equipment on submarines B63G 8/38})

U G02B 23/16  · Housings; Caps; Mountings; Supports, e.g. with counterweight (cases or receptacles A45C; for submarine periscopes G02B 23/08})
G02B 23/18 · · for binocular arrangements {(focusing binocular pairs G02B 7/06; adjusting pupillary distance of binocular pairs G02B 7/12)}

G02B 23/22 · · Underwater equipment {(for submarine periscopes G02B 23/08; arrangements on floating structures of underwater viewing devices B63C 11/49; arrangement of visual watch equipment on submarines B63G 8/38)}

NOTE
This group covers housings, mountings, supports or the like for underwater equipment other than periscopes

U G02B 23/24 · Instruments (or systems) for viewing the inside of hollow bodies, e.g. fibrescopes

G02B 23/26 · · using light guides {(for illumination G02B 23/2469)}

U G02B 26/00 Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light, e.g. switching, gating, modulating (specially adapted to measuring characteristics of light G01J; using devices or arrangements the optical operation of which is modified by changing the optical properties of the medium of the devices or the arrangements G02F 1/00; control of light in general G05D 25/00; control of light sources H01S 3/10, H05B 37/00 to H05B 43/00; mechanically operable parts of lighting devices for the control of light F21V)

G02B 26/02 · for controlling the intensity of light {((G02B 26/004 takes precedence)}

U G02B 27/00 Other optical systems; Other optical apparatus (means for bringing about special optical effects in shop-windows, show-cases A47F, e.g. A47F 11/06; optical toys A63H 33/22; designs or pictures characterised by special light effects B44F 1/00)

G02B 27/09 · Beam shaping, e.g. changing the cross-sectional area, not otherwise provided for {((adapting the beam shape of a laser diode G02B19/B3D; adapting the beam shape of an LED G02B19/B3L; coupling into light guides using intermediate optical elements G02B 6/4204; beam shaping specially adapted for lasers H01S 3/005)}

G02B 27/18 · for optical projection, e.g. combination of mirror and condenser and objective {((not in use, see the relevant CPC classes according to projector type, e.g. photographic, cine and overhead projectors G03B 21/00 and subgroups, photographic projection printing G03B 27/32, photolithographic projectors G03F 7/20, projection television H04N 5/74, colour projection television H04N 9/31)}

U G02B 27/22 · for producing stereoscopic or other three dimensional effects (in microscopes G02B 21/22; viewing apparatus G02B 27/02; stereoscopic television H04N 13/00)

G02B 27/24 · · involving reflecting prisms and mirrors only {((not used, see G02B 27/22 and subgroups)}

Project: N/A (G02C)

U G02C 7/00 Optical parts (characterised by the material G02B 1/00)

U G02C 7/02 · Lenses; Lens systems; { Methods of designing lenses}

G02C 7/06 · · bifocal; multifocal; { progressive (G02C 7/041 takes precedence)}
Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating; Non-linear optics (thermometers using change of colour or translucency G01K 11/12; using changes in fluorescence G01K 11/32; light guide devices G02B 6/00; optical devices or arrangements using movable or deformable elements for controlling light independent of the light source G02B 26/00; control of light in general G05D 25/00; visible signalling systems G08B 5/00; indicating arrangements for variable information by selection or combination of individual elements G09F 9/00; control arrangements or circuits for visual indicators other than cathode-ray tubes G09G 3/00; control of light sources H01S 3/10, H05B 33/08, H05B 35/00 to H05B 43/00; {photochromic filters G02B 5/23; optical logic elements G02F 3/00})

NOTE
This group covers only:

- devices or arrangements, e.g. cells, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;
- devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;
- control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.
Arrangement of liquid crystal layers or cells in which the final condition of one light beam is achieved by the addition of the effects of two or more layers or cells ((colour projection displays with liquid crystal valves H04N 9/3197))

· · · · · · · · · ·

Liquid crystal cells structurally associated with a photoconducting or a ferro-electric layer, the properties of which can be optically or electrically varied ((G02F 1/133348 takes precedence))

· · · · · · · · · ·

Liquid crystal cells structurally associated with a semi-conducting layer or substrate, e.g. cells forming part of an integrated circuit (G02F 1/135 takes precedence)

· · · · · · · · · ·

Active matrix addressed cells ((G02F 1/134336, G02F 1/134363 take precedence))

· · · · · · · · · ·

in which the switching element is a two-electrode device ((G02F 1/136277 takes precedence))

· · · · · · · · · ·

in which the switching element is a three-electrode device ((G02F 1/136277 takes precedence))

· · · · · · · · · ·

based on electrochromic elements ((electrochromic materials C09K 9/00))

· · · · · · · · · ·

for the control of the position or the direction of light beams, i.e deflection ((optical coupling means G02B 6/26; optical-mechanical scanning in general G02B 26/10); static stores with electric or magnetic read-in and optical read-out G11C; lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted H01S 3/101)

· · · · · · · · · ·

Acousto-optical deflection devices ((circuit or control arrangements therefor G02F 1/113))

· · · · · · · · · ·

Non-linear optics (optical bistable devices G02F 3/02; lasers using stimulated Brillouin or Raman effect H01S 3/30)

· · · · · · · · · ·

for second-harmonic generation ((G02F 1/3532 takes precedence))

· · · · · · · · · ·

in an optical waveguide structure

· · · · · · · · · ·

(with a periodic structure, e.g. domain inversion, for quasi-phase-matching (QPM) (G02F 1/383 takes precedence))

APPARATUS OR ARRANGEMENTS FOR TAKING PHOTOGRAPHS OR FOR PROJECTING OR VIEWING THEM; APPARATUS OR ARRANGEMENTS EMPLOYING ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ACCESSORIES THEREFOR (optical parts of such apparatus G02B; systems for automatic generation of focusing signals for optical elements per se G02B 7/28; photosensitive materials or processes for photographic purposes G03C; apparatus for processing exposed photographic materials G03D)

NOTES

1. This subclass covers, as far as processes are concerned, only processes characterised by the use or manipulation of apparatus classifiable per se in this subclass.

2. This subclass covers:
   • apparatus or methods for taking photographs using light sensitive film for image capture, apparatus, or methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, or their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;
   • aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they
correspond to those of said apparatus or methods for taking photographs using light sensitive film, i.e. insofar not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, or their related controls insofar they are not peculiar to the presence of the EIS, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake);

- aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus or methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, or their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
- (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
- optical viewfinders;
- remote control of cameras and projectors insofar not peculiar to the EIS or ESLM;
- optical aspects of camera modules using electronic image sensors or related constructional details;
- constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM.

3. This subclass does not cover:
   - concerning cameras or projectors:
     - arrangements or methods for image capture peculiar to the presence or use of an EIS or image projection peculiar to the presence or use of an ESLM, and their related controls insofar they are peculiar to the presence or use of the EIS or ESLM, which are covered by H04N;
     - processing of electrical image signals from the EIS or provided to the ESLM, which is covered by H04N;
     - electronic viewfinders, e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS, which are covered by H04N;
     - electrical or mechanical aspects of camera modules using electronic image sensors and related constructional details as in webcams or mobile phones, which are covered by H04N, H04N;
     - details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM, which are covered by H04N;
     - remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated electrical image signal, which is covered by H04N;
     - adaptations peculiar to the use of an EIS or ESLM or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS. which are covered by H04N;
     - video cameras, TV cameras, e.g. in studios, CCTV cameras, surveillance cameras and camcorders; constructional and mechanical details related to such cameras, e.g. housings, even when not peculiar to the presence of an EIS, which are covered by H04N 5/225;
     - systems or apparatus wherein the inventive contribution lies in features covered above, concerning cameras when interacting with those to be covered by G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic-motion blur correction of the electronic image signal based on output

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signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS, which are covered by H04N.

- EIS-sensor read-out, which is covered by H04N 5/335;
- processing or use of electrical image signals from the EIS for the generation of camera control signals, e.g. focusing, exposure control, electronic blur correction, display in electronic viewfinder, which are covered by H04N 5/232, H04N 5/235.

- optical parts for apparatus or arrangements for taking photographs or for projecting or viewing them, which are covered by G02B;
- photosensitive materials for photographic purposes, which are covered by G03C;
- apparatus for processing exposed photographic materials; accessories therefor, which are covered by G03D.
- optical elements or arrangements associated with solid state imager structures, which are covered by H01L 27/146;

4. In this subclass the following expression is used with the meaning indicated: subject to the application of Notes 1 and 2 above, "photography" is the process of recording pictures by means of capturing light on a light-sensitive medium, e.g. silver halide based chemical or an electronic image sensor. Light patterns reflected or emitted from objects expose such a light sensitive medium during a timed exposure, usually through a photographic lens in a device known as a camera.

5. In this subclass, as in subclass H04N, the following terms are used with the meaning indicated:

- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
- "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
- "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
- "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
- "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.

U G03B 42/00 Obtaining records using waves other than optical waves; Visualisation of such records by using optical means (investigating or analysing materials using electromagnetic or sonic waves G01N; using radar, sonar or analogous techniques G01S; (holography G03H))

U G03B 42/02 using X-rays (measurement of X-radiation G01T; X-ray apparatus, circuits therefor H05G 1/00)

U G03B 42/04 Holders for X-ray films

G03B 42/402 (for dental applications (see also A61B 6/14); (individual packages for X-ray film G03C 3/003))
Photosensitive materials (photosensitive materials for multicolour processes \textsc{g03c} 7/00; for diffusion transfer processes \textsc{g03c} 8/00; photosensitive glass \textsc{c03c} 4/04)

- Silver halide emulsions; Preparation thereof; Physical treatment thereof; Incorporation of additives therein (catalytic amounts of silver halide in dry silver systems (or thermographic systems using noble metal compounds) \textsc{g03c} 1/494)

- with non-macromolecular additives (\textsc{g03c} 1/047 takes precedence; combination of dyes \textsc{g03c} 1/29)

- Sensitivity-increasing substances

- Matting agents (see also \textsc{g03c} 1/95)

- Compositions containing noble metal salts other than silver salts, as photosensitive substances (thermographic systems using noble metal compounds \textsc{g03c} 1/494)

- Photosensitive materials characterised by the base or auxiliary layers

- characterised by antireflection means or visible-light filtering means, e.g. antihalation

- Organic dyestuffs therefor (polymeric dyes \textsc{g03c} 1/835)

Photographic processes or agents therefor; Regeneration of such processing agents (multicolour processes or agents therefor \textsc{g03c} 7/00; diffusion-transfer processes or agents therefor \textsc{g03c} 8/00; stereophotographic processes \textsc{g03c} 9/00; photomechanical processes \textsc{g03f})

- Processes using silver-salt-containing photosensitive materials or agents therefor (physical development \textsc{g03c} 5/58)

- Development processes or agents therefor (\textsc{g03c} 5/38, \textsc{g03c} 5/50 take precedence)

- Additives other than developers (\textsc{g03c} 5/264 takes precedence)

- Chemically transforming developed images (\textsc{g03c} 5/50 takes precedence)

- Reducing; Intensifying (using couplers \textsc{g03c} 7/30)

Multicolour photographic processes or agents therefor; Regeneration of such processing agents; Photosensitive materials for multicolour processes (diffusion transfer processes \textsc{g03c} 8/00)

- Additive processes using colour screens; Materials therefor; Preparing or processing such materials

- Manufacture of colour screens

- with regular areas of colour, e.g. bands, lines, dots

- by photo-exposure (photomechanical production of optical colour artifacts such as colour screens, for purposes other than for additive colour photography \textsc{g03f} 7/0007)

- Colour processes using colour-coupling substances; Materials therefor; Preparing or processing such materials

- Processes for the incorporation in the emulsion of substances liberating photographically active agents or colour-coupling substances; Solvents therefor (incorporation of additives other than couplers \textsc{g03c} 1/005)

- Additives (\textsc{g03c} 7/30 to \textsc{g03c} 7/32 take precedence)

- Macromolecular additives (\textsc{g03c} 7/388 takes precedence)
PHOTOMECHANICAL PRODUCTION OF TEXTURED OR PATTERNED SURFACES, e.g. FOR PRINTING, FOR PROCESSING OF SEMICONDUCTOR DEVICES; MATERIALS THEREFOR; ORIGINALS THEREFOR; APPARATUS SPECIALLY ADAPTED THEREFOR; (phototypographic composing devices B41B; photosensitive materials or processes for photographic purposes G03C; electrophotography, sensitive layers or processes therefor G03G)

NOTE
In this subclass, the following terms or expressions are used with the meanings indicated:

- "photosensitive" means not only sensitive to electro- magnetic radiation but also to corpuscular radiation;
- "photosensitive compositions" covers photosensitive substances, e.g. quinonediazides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. photoresists, the bases carrying them and, if applicable, auxiliary layers.

WARNING
The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

- G03F 3/08 covered by H04N 1/46
- G03F 7/207
- G03F 7/23
- G03F 9/02

G03F 5/00 Screening processes; Screens therefor {(plates or light sensitive layers with incorporated screen G03F 7/004)}

U G03F 7/00 Photomechanical, e.g. photolithographic, production of textured or patterned surfaces, e.g. printing surfaces; Materials therefor, e.g. comprising photoresists; Apparatus specially adapted therefor (using photoresist structures for special production processes, see the relevant places, e.g. B44C, H01L, e.g. H01L 21/00, H05K)

U G03F 7/004 · Photosensitive materials (G03F 7/12, G03F 7/14 take precedence)

U G03F 7/008 · Azides (G03F 7/075 takes precedence)

G03F 7/012 · Macromolecular azides; Macromolecular additives, e.g. binders (G03F 7/0085 takes precedence)

U G03F 7/022 · Quinonediazides (G03F 7/075 takes precedence)

G03F 7/023 · Macromolecular quinonediazides; Macromolecular additives, e.g. binders (G03F 7/0226 takes precedence)

U G03F 7/06 · Silver salts (G03F 7/075 takes precedence)

G03F 7/07 · used for diffusion transfer (G03F 7/063 takes precedence)

U G03F 7/09 · characterised by structural details, e.g. supports, auxiliary layers (supports for printing plates in general B41N)

G03F 7/11 · having cover layers or intermediate layers, e.g. subbing layers (G03F 7/091 to G03F 7/093, B41N 3/03 take precedence)

U G03F 7/20 · Exposure; Apparatus therefor (photographic printing apparatus for making copies G03B 27/00)

G03F 7/213 · Exposing with the same light pattern different positions of the same surface at the same time (G03F 7/70 takes precedence)
Exposing sequentially with the same light pattern different positions of the same surface (G03F 7/70 takes precedence)

Processing photosensitive materials; Apparatus therefor (G03F 7/12 to G03F 7/24 take precedence)

Treatment before imagewise removal, e.g. prebaking (G03F 7/265 takes precedence)

Exposure apparatus for microlithography

Production of exposure light, i.e. light sources (by multiple sources (addressable array sources specially adapted to produce patterns G03F 7/70391))

Electrographic processes using a charge pattern (G03G 15/00, G03G 16/00, G03G 17/00 take precedence)

NOTE
Group G03G 15/00 also deals with processes in so far as they are characterised by the use or manipulation of apparatus classifiable per se in group G03G 15/00 and therefor takes precedence

for multicoloured copies ((colour correction on photography G03B 27/725; picture communication systems H04N 1/46))

Apparatus for electrographic processes using a charge pattern (G03G 16/00, G03G 17/00 take precedence; (xerographic printers for data processors per se G06K 15/14))

For producing multicoloured copies ((colour correction in photography G03C; colour correction in printing plate production))

Electrographic processes using deformation of thermoplastic layers (layers for surface-deformation imaging G03G 5/022); Apparatus therefor ((shaping of plastic objects with thermoplastic memory effect B29C 61/00; digital stores using thermoplastic elements G11C 11/46; television signal recording using deformable thermoplastic recording medium H04N 5/82))

Apparatus for electrophotographic processes (not used)

relating to the copy medium handling (not used)

The feeding path segment where particular handling of the copy medium occurs, segments being adjacent and non-overlapping. Each segment is identified by the most downstream point in the segment, so that for instance the segment labelled “Fixing device” is referring to the path between the “Transfer device” and the “Fixing device” (not used)

Indicating the time by visual means ((indicating the time optically by electric means G04C 17/00, e.g.) by electric lamps G04C 17/02; display arrangements in general G09F)

Clocks or watches with date (or week-day) indicators, i.e. calendar clocks or watches; Clockwork calendars ((combination of the clockwork with an independently settable calendar G04B 47/00))

characterised by the shape of the date indicator

drum-shaped (or three-dimensional shaped (G04B 19/24306 takes precedence; for electrically driven timepieces G04C 17/0083))
Indicating the time by acoustic means (at preselected times G04B 23/00; by electro-acoustic means G04C 21/04; indicating the time by means other than acoustically, or by combined means G04B 25/00; indicating the time by visual means G04B 19/00, G04C 17/00; acoustic signalling arrangements G08B 3/00)

Periodical acoustic signalling arrangements (G04B 21/02 takes precedence; (adjustment of the frequency by setting the length of the pendulum G04B 18/003; metronomes G04F 5/02))

Cases ((Cases with a special shape G04B 45/0069; ornamentation of the case G04B 47/04; cartridges A45C 11/00 to A45C 11/38))

Forming the passage for the winding stem through the case; Divided winding stems ((watertight protection means for the winding stem G04B 37/10; fixing the knob to the case G04B 37/1466; winding and setting the hands with the winding stem with clutch wheel G04B 27/04, with rocking bar G04B 27/06))

Divided stem (tige brisee) (normal winding stems G04B 3/041)

Control of position, course or altitude of land, water, air, or space vehicles, e.g. automatic pilot (steering applicable only to other than landborne vehicles, e.g. three-dimensional steering applicable to both aircraft and submarines B60K; construction or disposition of steering means on land vehicles B62, on waterborne vessels B63; manual or automatic control of aircraft, e.g. using automatic pilot or radiated signal B64C; radio navigation systems or analogous systems using other waves G01S)

Control of position or course in two dimensions

using near-field transmission systems, e.g. inductive-loop type ((G05D 1/021 and subgroups take precedence))

Control of flow (level control G05D 9/00; ratio control G05D 11/00; of media to the human body A61M 5/168; weighing apparatus G01G)

with auxiliary non-electric power ((G05D 7/005 takes precedence))

characterised by the use of electric means ((G05D 7/005 takes precedence))

Control of linear speed; Control of angular speed; Control of acceleration or deceleration, e.g. of a prime mover (synchronising telegraph receiver and transmitter H04L 7/00)

characterised by the use of electric means, e.g. use of a tachometric dynamo, use of a transducer converting an electric value into a displacement ((electric motor control H02P))

Details of data-processing equipment not covered by groups G06F 3/00 to G06F 13/00, (e.g. cooling, packaging or power supply specially adapted for computer application (security arrangements for protecting computers or computer systems against unauthorised activity G06F 21/00))

Digital function generators ((evaluating functions by calculating only G06F 7/544, G06F 7/60; generating sawtooth or staircase waveforms H03K 4/00))

for functions having two-valued amplitude, e.g. Walsh functions ((generation of pulse trains in general H03K 3/00))
NOTE
In order to be classified in this group, the table must contain function values of the desired or an intermediate function, not merely coefficients.

Reduction of table size ((G06F 1/0314 takes precedence))

Generating or distributing clock signals or signals derived directly therefrom (G06F 1/08 to G06F 1/14 take precedence)

Constructional details or arrangements (instrument details G12B)

Packaging or power distribution (for electrical apparatus in general H05K, H02J)

Enclosures (for electric apparatus in general H05K 5/00; for portable computers G06F 1/1613)

Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements (typewriters B41J; conversion of physical variables F15B 5/00, G01; image acquisition G06T 1/00, G06F 9/00; coding, decoding or code conversion in general H03M; transmission of digital information H04L; in regulating or control systems G05B)

Input arrangements or combined input and output arrangements for interaction between user and computer (G06F 3/16 takes precedence)

Input arrangements using manually operated switches, e.g. using keyboards or dials (keyboard switches per se H01H 13/70; electronic switches characterised by the way in which the control signals are generated H03K 17/94)

Arrangements for converting discrete items of information into a coded form, e.g. arrangements for interpreting keyboard generated codes as alphanumeric codes, operand codes or instruction codes (coding in connection with keyboards or like devices in general H03M 11/00)

Arrangements for inserting of decimal point (display of decimal point G06F 3/1407; complete desk-top or hand-held calculators G06F 15/02)

Arrangements for converting the position or the displacement of a member into a coded form

Pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks; Accessories therefor (constructional details of joysticks G05G 9/047; arrangement for interfacing a joystick to a computer G06F 3/038)

Digitisers, e.g. for touch screens or touch pads, characterized by the transducing means

by opto-electronic means (pens detecting optically their absolute position with respect to a coded surface G06F 3/0317)

Methods or arrangements for data conversion without changing the order or content of the data handled (by coding or decoding H03M)

for shifting, e.g. justifying, scaling, normalising (digital stores in which the information is moved stepwise, e.g. shift-registers G11C 19/00; digital stores in which the information circulates G11C 21/00)
G06F 5/06  · for changing the speed of data flow, i.e. speed regularising (or timing, e.g. delay lines, FIFO buffers; over- or underrun control therefor; {G06F 7/78 takes precedence})

G06F 5/08  · · having a sequence of storage locations, the intermediate ones not being accessible for either enqueue or dequeue operations, e.g. using a shift register {{G06F 5/065 takes precedence; shift registers per se G11C 19/00}}

G06F 5/10  · · having a sequence of storage locations each being individually accessible for both enqueue and dequeue operations, e.g. using random access memory {{G06F 5/065 takes precedence}}

U G06F 7/00  Methods or arrangements for processing data by operating upon the order or content of the data handled (logic circuits H03K 19/00)

U G06F 7/22  · Arrangements for sorting or merging computer data on continuous record carriers, e.g. tape, drum, disc

U G06F 7/24  · · Sorting, i.e. extracting data from one or more carriers, rearranging the data in numerical or other ordered sequence, and rerecording the sorted data on the original carrier or on a different carrier or set of carriers [sorting methods in general]{{G06F 7/36 takes precedence}}

G06F 7/26  · · the sorted data being recorded on the original record carrier within the same space in which the data had been recorded prior to their sorting, without using intermediate storage {{contains no documents, see G06F 7/24}}

U G06F 7/38  · Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation

U G06F 7/48  · · using non-contact-making devices, e.g. tube, solid state device; using unspecified devices

U G06F 7/483  · · · Computations with numbers represented by a non-linear combination of denominational numbers, e.g. rational numbers, logarithmic number system, floating-point numbers (conversion to or from floating-point codes H03M 7/24){{G06F 7/4806 , G06F 7/4824, G06F 7/49 , G06F 7/544 take precedence}}

G06F 7/485  · · · Adding; Subtracting {{G06F 7/4833 , G06F 7/4836 take precedence}}

G06F 7/487  · · · Multiplying; Dividing {{G06F 7/4833 , G06F 7/4836 take precedence}}

G06F 7/491  · · · Computations with decimal numbers {radix 12 or 20. {G06F 7/4824 takes precedence}}

U G06F 7/50  · · Adding; Subtracting (G06F 7/483 to G06F 7/491 , G06F 7/544 take precedence)

U G06F 7/501  · · · Half or full adders, i.e. basic adder cells for one denomination (EXCLUSIVE-OR circuits H03K 19/21)

G06F 7/502  · · · · Half adders; Full adders consisting of two cascaded half adders {{G06F 7/5013 takes precedence}}

U G06F 7/52  · · · Multiplying; Dividing (G06F 7/483 to G06F 7/491 , G06F 7/544 take precedence)

U G06F 7/535  · · · · Division only

G06F 7/537  · · · · · Reduction of the number of iteration steps or stages, e.g. using the Sweeny-Robertson-Tocher (SRT) algorithm {{not used, see G06F 7/535 or G06F 7/5375}}

G06F 7/58  · Random or pseudo-random number generators {{random pulse generators H03K 3/84 ; secret telegraphic communication H04L 9/00 ; lottery apparatus G07C 15/00}}
Methods or arrangements for performing computations using a digital non-denominational number representation, i.e. number representation without radix; Computing devices using combinations of denominational and non-denominational quantity representations, e.g. using difunction pulse trains, STEELE computers, phase computers (conversion of digital data to or from non-denominational form H03M 5/00, H03M 7/00)

WARNING
Not complete: for computing devices using combinations of denominational and non-denominational quantity representations see also G06F 7/62

G06F 7/70
- using stochastic pulse trains, i.e. randomly occurring pulses the average pulse rates of which represent numbers (conversion of analogue signals into stochastic pulse trains and vice-versa H03M 1/04)

G06F 7/72
- using residue arithmetic

G06F 7/723
- Modular exponentiation (G06F 7/724), (G06F 7/727), (G06F 7/728 take precedence)

G06F 7/74
- Selecting or encoding within a word the position of one or more bits having a specified value, e.g. most or least significant one or zero detection, priority encoders (with shifting G06F 5/01)

G06F 9/00
Arrangements for programme control, e.g. control unit (programme control for peripheral devices G06F 13/10 ; in regulating or control systems G05B)

G06F 9/06
- using stored programme, i.e. using internal store of processing equipment to receive and retain programme

G06F 9/30
- Arrangements for executing machine-instructions, e.g. instruction decode (for executing micro-instructions G06F 9/22 ; for executing subprogrammes G06F 9/40)

G06F 9/34
- Addressing or accessing the instruction operand or the result; (Formation of operand address; Addressing modes (address translation G06F 12/00))

G06F 9/345
- of multiple operands or results (addressing multiple banks G06F 12/06)

G06F 9/44
- Arrangements for executing specific programmes

G06F 9/445
- Programme loading or initiating (bootstrapping G06F 9/4401 ; movement of software or configuration parameters for network-specific applications H04L 67/34)

G06F 9/455
- Emulation; Software simulation, i.e. virtualisation or emulation of application or operating system execution engines (instruction translation at instruction execution time G06F 9/3017 ; multiprogramming in general G06F 9/46 ; logical partitioning of resources or management or configuration of virtualized resources G06F 9/5077 ; in-circuit emulation G06F 11/3652 ; environments for testing or debugging software G06F 11/3664)

G06F 9/45533
- {Hypervisors; Virtual machine monitors}

G06F 9/45558
- {Hypervisor-specific management and integration aspects}

G06F 2009/45579
- I/O management (device drivers, storage access) (internal functioning of device drivers G06F 13/102 ; loading of device drivers G06F 9/4411)
U G06F 11/00 Error detection; Error correction; Monitoring (methods or arrangements for verifying the correctness of marking on a record carrier G06K 5/00; in information storage based on relative movement between record carrier and transducer G11B, e.g. G11B 20/18; in static stores G11C; coding, decoding or code conversion, for error detection or error correction, in general H03M 13/00)

NOTE In this group the indexing codes of G06F 1/00 to G06F 15/00 are added

U G06F 11/22 Detection or location of defective computer hardware by testing during standby operation or during idle time, e.g. start-up testing (testing of digital circuits, e.g. of separate computer components G01R 31/317)

U G06F 11/26 Functional testing
G06F 11/273 Tester hardware, i.e. output processing circuits (G06F 11/263 takes precedence)

U G06F 12/00 Accessing, addressing or allocating within memory systems or architectures (digital input or output to record carriers, e.g. to disc storage units G06F 3/08; information storage in general G11)
G06F 12/16 Protection against loss of memory contents (contains no material, see G06F 11/00)

U G06F 13/00 Interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units (interface circuits for specific input/output devices G06F 3/00; multiprocessor systems G06F 15/16; transmission of digital information in general H04L; selecting H04Q; {multiprogramme control therefor G06F 9/46})

U G06F 13/38 Information transfer, e.g. on bus (G06F 13/14 takes precedence)
G06F 13/40 Bus structure (for computer networks G06F 15/163; for optical bus networks H04B10/20)

U G06F 15/00 Digital computers in general (details G06F 1/00 to G06F 13/00); Data processing equipment in general (neural networks for image data processing G06T)
G06F 15/16 Combinations of two or more digital computers each having at least an arithmetic unit, a programme unit and a register, e.g. for a simultaneous processing of several programmes (coordinating programme control therefor G06F 9/52; in regulating and control system G05B)

U G06F 17/00 Digital computing or data processing equipment or methods, specially adapted for specific functions
G06F 17/10 Complex mathematical operations (function generation by table look-up G06F 1/03; evaluation of elementary functions by calculation G06F 7/544)
U G06F 17/20 Handling natural language data (speech analysis or synthesis G10L)
U G06F 17/21 Text processing (G06F 17/27, G06F 17/28 take precedence; systems for composing machines B41B 27/00)
G06F 17/22 Manipulating or registering by use of codes, e.g. in sequence of text characters (compression H03M 7/30)
G06F 17/2247 (Tree structured documents; Markup, e.g. Standard Generalized Markup Language [SGML], Document Type Definition (DTD) (validation and parsing G06F 17/2705; data retrieval G06F 17/30; coding and compression H03M 7/30))
G06F 17/24 Editing, e.g. insert/delete (G06F 17/22 takes precedence)
G06F 17/27  · · Automatic analysis, e.g. parsing {(speech recognition, analysis or synthesis G10L)}

U G06F 17/30  · Information retrieval; Database structures therefor;{File system structures therefor (data processing systems or methods specially adapted for administrative, commercial, financial managerial, supervisory or forecasting purposes G06Q)}

U G06F 17/30067  · · (File systems; File servers (G06F 17/3061 , G06F 17/30017 , G06F 17/30244 , G06F 17/3074 , G06F 17/30781 take precedence; dedicated interfaces to storage systems G06F 3/0601 ; error detection, correction or monitoring G06F 11/00)}

WARNING
Groups G06F 17/3007 to G06F 17/30238 are not complete pending reclassification. See also this group

U G06F 17/30182  · · · {File system types}
U G06F 17/30194  · · · · {Distributed file systems}
U G06F 17/30197  · · · · · {implemented using NAS architecture (distributed or networked storage systems G06F 3/067 ; protocols for distributed storage of data in a network H04L 67/1097)}

G06F 17/302  · · · · · · {Details of management specifically adapted to network area storage (NAS) (management of NAS or SAN G06F 3/067)}

G06F 21/00 Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity {(address-based protection against unauthorised use of memory G06F 12/14 ; record carriers for use with machines and with at least a part designed to carry digital markings G06K 19/00 ; preventing unauthorised reproduction or copying of disk-type recordable media G11B 20/00 ; secret or secure communication H04L 9/00 ; digital watermarking on images H04N 1/32 ; protection in video systems or pay television H04N 7/16)}

Project: N/A (G06K)

U G06K 7/00  Methods or arrangements for sensing record carriers,(e.g. for reading patterns) (G06K 9/00 takes precedence)

U G06K 7/10  · by electromagnetic radiation, e.g. optical sensing; by corpuscular radiation
U G06K 7/10009  · · {sensing by radiation using wavelengths larger than 0.1 mm, e.g. radio-waves or microwaves}

NOTE
This group covers electromagnetic interrogation as radiated by the antenna of an interrogation device while interrogating a plurality of wireless electronic memory record carriers, e.g. non-contact smart cards, RFID tags or labels, or transponders

G06K 7/10019  · · · {resolving collision on the communication channels between simultaneously or concurrently interrogated record carriers. (collision between the communication channels used by wireless communication devices, where the solution is not particularly adapted for RFIDs or the like, H04W 74/08)}

G06K 7/14  · · using light without selection of wavelength, e.g. sensing reflected white light {(G06K 7/10831 to G06K 7/1097 take precedence)}
Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints (processing or analysis of tracks of nuclear particles G01T 5/02; {information retrieval G06F 17/30; medical diagnosis G06F 19/34; recognition of molecular sequences G06F 19/70; radio frequency identification G06K 7/00; recognition of barcodes and similar code images G06K 7/10; computer systems based on specific computational models G06N; image analysis, inspection, positioning or tracking G06T 7/00; recognition of acoustic speech signals G10L 15/00; acoustic speaker identification G10L 17/00})

NOTES

1. In this group, the following term is used with the meaning indicated:
   * "recognising" includes several functions such as extracting features, clustering, classifying or matching.

2. IPC subgroups G06K 9/20, G06K 9/36, G06K 9/62 and G06K 9/74 refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range G06K 9/00006 to G06K 9/00852. The CPC subgroups in the range G06K 9/00006 to G06K 9/00852 refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.

3. The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under G06F 3/00.

G06K 9/03
- Detection or correction of errors, e.g. by rescanning the pattern {{validation or performance evaluation G06K 9/6261}}

G06K 9/20
- Image acquisition

G06K 9/34
- Segmentation of touching or overlapping patterns in the image field {{segmentation by quantisation, e.g. thresholding, G06K 9/38; edge detection for image feature extraction G06K 9/4604; extraction of connected components or edge linking G06K 9/4638; segmentation or edge detection for general image processing G06T 7/0079}}

G06K 9/36
- Image preprocessing, i.e. processing the image information without deciding about the identity of the image (image data processing or generation, in general G06T)

NOTE
Group G06K 9/58 takes precedence over groups G06K 9/38 to G06K 9/54

G06K 9/40
- Noise filtering {{restoration for general image processing G06T 5/001; morphologic operations for general image enhancement G06T 5/30}}

G06K 9/44
- Smoothing or thinning of the pattern {{restoration for general image processing G06T 5/001; morphologic operations for general image enhancement G06T 5/30}}

G06K 9/46
- Extraction of features or characteristics of the image {{segmentation of touching or overlapping patterns G06K 9/34; edge detection for feature extraction G06K 9/4604; segmentation or edge detection for general image processing G06T 7/0079}}

G06K 9/4671
- {Extracting features based on salient regional features, e.g. Scale Invariant Feature Transform [SIFT] keypoints (determination of region of interest for recognition [ROI] G06K 9/3233; extraction of specific shape primitives, e.g. corner or loop, or of configurations thereof, G06K 9/4604; biologically-inspired systems integrating saliency maps, e.g. for modelling visual attention G06K 9/4628; global invariant features G06K 9/52}}
Extracting features based on a plurality of salient regional features, e.g. "bag of words" (saliency map with interactions such as reinforcement or inhibition G06K 9/4623)

Combinations of preprocessing functions using a local operator, i.e. means to operate on an elementary image point in terms of the immediate surroundings of this point (local operators for general image enhancement G06T 5/20)

Methods or arrangements for recognition using electronic means (learning machines G06F 15/18; digital correlation G06F 17/15; analogue correlation G06G 7/19)

(Classification techniques)

Classifying techniques based on a parametric (probabilistic) model, e.g. based on Neyman-Pearson lemma, likelihood ratio, Receiver Operating Characteristic (ROC) curve plotting a False Acceptance Rate (FAR) versus a False Reject Rate (FRR) (segmentation of touching or overlapping patterns involving probabilistic approaches G06K 9/34; image connectivity analysis involving probabilistic approaches, e.g. Markov Random Fields techniques, G06K 9/4638; segmentation involving probabilistic approaches for general image processing G06T 7/0087)

Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signal (combined with character or pattern recognition G06K 9/00; feelers for copying devices on machine tools B23Q 35/00; arrangements for measuring areas G01B; measuring force G01L; adapted as input devices to computers G06F 3/00; systems for transmitting the position of an object with respect to a predetermined reference system, e.g. tele-autographic system, G08C 21/00)

WARNING
This group and its subgroups are no longer used for the classification of new documents as from 1 January 2006. Documents relating to methods and arrangements for input to a computer are classified under G06F 3/033 and G06F 3/041

Devices for converting the position of a manually operated writing or tracing member into an electrical signal (not used, see G06F 3/03)

Arrangements for producing a permanent visual presentation of the output data, e.g. computer output printers (printing or plotting combined with another operation, e.g. with conveying, G06K 17/00) (construction of printing heads B41J 2/00; special arrangements for scanning and reproduction of pictures involving their transmission, e.g. facsimile H04N 1/00; for photocomposing B41B 19/00)

Using printers

by matrix printers ((G06K 15/028 takes precedence))

by electrographic printing, e.g. xerography; by magnetographic printing ((G06K 15/12 takes precedence))

Administration; Management

Forecasting or optimisation, e.g. linear programming, "travelling salesman problem" or "cutting stock problem" (data collection specially adapted for marketing, price determination or demand forecasting G06Q 30/02)
G06Q 10/06  ·  Resources, workflows, human or project management, e.g. organising, planning, scheduling or allocating time, human or machine resources; Enterprise planning; Organisational models {{financial asset management G06Q 40/06}}

G06Q 10/10  ·  Office automation, e.g. computer aided management of electronic mail or groupware (electronic mail network systems H04L 12/58; electronic mail protocols H04L 29/06); Time management, e.g. calendars, reminders, meetings or time accounting {{organizing, planning, scheduling or allocating time G06Q 10/06}}

U  G06Q 20/00  Payment architectures, schemes or protocols (apparatus for performing or posting payment transactions G07F 7/08, G07F 19/00; electronic cash registers G07G 1/12)

U  G06Q 20/08  ·  Payment architectures

U  G06Q 20/20  ·  Point-of-sale [POS] network systems {{POS per se G07F or G07G}}

U  G06Q 30/00  Commerce, e.g. shopping or e-commerce

U  G06Q 30/06  ·  Buying, selling or leasing transactions

U  G06Q 30/08  ·  Auctions, {matching or brokerage (matching or brokerage for stock exchange G06Q 40/04)}

U  G06Q 40/00  Finance; Insurance; Tax strategies; Processing of corporate or income taxes

U  G06Q 40/08  ·  Insurance, e.g. risk analysis or pensions {{processing of insurance policies or claims G06Q 10/10}}

Project: N/A (G06T)

U  G06T 5/00  Image enhancement or restoration, e.g. from bit-mapped to bit-mapped creating a similar image


WARNING
Not complete pending reclassification; see also group G06T 5/001


G06T 5/40  ·  by the use of histogram techniques {{applied in cameras using an electronic image sensor H04N 5/23229, H04N 5/235}}

G06T 5/50  ·  by the use of more than one image, e.g. averaging, subtraction {{applied in cameras using an electronic image sensor H04N 5/23229, H04N 5/235}}

U  G06T 7/00  Image analysis, e.g. from bit-mapped to non-bit-mapped

G06T 7/40  ·  Analysis of texture {{depth or shape from texture G06T 7/0059}}

Project: N/A (G07B)

U  G07B 15/00  Arrangements or apparatus for collecting fares, tolls or entrance fees at one or more control points (handling coins or paper currency G07D; apparatus for vending or hiring articles or services activated by coins, credit cards, paper currency or the like G07F 7/00, G07F 17/00)

NOTES
1. Data processing aspects of payment systems or protocols relating to toll, entrance fee or fare collection, e.g. in road pricing or congestion charging, are also classified in G06Q 20/00.

2. { This group covers also:
- car rental systems;
- systems for reserving and using access tickets, e.g. check-in systems

U  G07B 15/02
   · taking into account a variable factor such as distance or time, e.g. for passenger transport, parking systems or car rental systems (G07B 15/06 takes precedence; taximeters G07B 13/00; parking meters per se G07F 17/24; { car rental systems per se G07B 15/00})

G07B 15/04
   · · comprising devices to free a barrier, turnstile, or the like {(turnstiles with registering means G07C 9/02; coin-freed aspects G07F 17/00)}

U  G07B 17/00
   Franking apparatus (printing aspects B41)

G07B 17/02
   · with means for computing or counting {{G07B 17/00975 takes precedence}}

Project: N/A (G07D)

U  G07D 7/00
   Testing specially adapted to determine the identity or genuineness of paper currency or similar valuable papers, e.g. for segregating those which are unacceptable or alien to a currency {(arrangements for verifying the correctness of markings on a record carrier G06K 5/00)}

NOTE
In this group, groups G07D 7/16 to G07D 7/20 take precedence over groups G07D 7/02 to G07D 7/14.

WARNING
Groups G07D 7/0006, G07D 7/0046 and G07D 7/0093 are not complete pending a reclassification. See also group G07D 7/004

G07D 7/02
   · using electric means, {e.g. detecting electric properties of banknotes (G07D 7/004, G07D 7/04, G07D 7/06 take precedence)}

G07D 7/04
   · using magnetic means, e.g. detection of magnetic imprint, {detecting magnetic properties of banknotes (G07D 7/004 takes precedence)}

G07D 7/06
   · using wave or particle radiation, {e.g. radiating waves onto the banknote (G07D 7/004 takes precedence)}

G07D 7/18
   · Testing the stiffness { or other mechanical properties, e.g. wear or tear (G07D 7/16 takes precedence)}

Project: N/A (G07F)

G07F 7/00
   Mechanisms actuated by objects other than coins to free or to actuate vending, hiring, coin or paper currency dispensing or refunding apparatus {{handling coins or paper currencies apart from coin-freed or like apparatus G07D; complete banking systems G07F 19/00}}

G07F 7/02
   · by keys or other credit registering devices {{for producing a coded signal for use together with coded identity cards G07F 7/10}}

U  G07F 17/00
   Coin-freed apparatus for hiring articles; Coin-freed facilities or services

U  G07F 17/32
   · for games, toys, sports or amusements,{e.g. casino games, online gambling or betting (game play without financial reward A63F)}

G07F 17/38
   · · Ball games; Shooting apparatus {{(ball games, e.g. football, golf, bowls, without coin collection A63B)}}
Project: N/A (G08B)

**U G08B 7/00** Signalling systems according to more than one of groups G08B 3/00 to G08B 6/00 (combinations of display arrangements with audible advertising G09F 27/00); Personal calling systems according to more than one of groups G08B 3/00 to G08B 6/00 (combinations of display devices with advertising G09F)

- G08B 7/06 G08B 7/06 using electric transmission (e.g. involving audible and visible signalling through the use of sound and light sources (walking aids for blind persons A61H 3/06; facilitating escape from buildings A62B 3/00))

**U G08B 17/00** Fire alarms; Alarms responsive to explosion (temperature-responsive elements G01K; automatic fire-extinguishing and alarm devices A62C 35/00, A62C 37/00; structural combination of lighting devices with smoke detectors F21V 33/0076; arrangement of safety devices on stoves F24C 7/08)

- G08B 17/10 Actuation by presence of smoke or gases (automatic alarm devices for analysing flowing fluid materials by the use of optical means (turbidimetric analysis of gases, e.g. of smoke G01N 21/534))

Project: N/A (G09G)

**U G09G 1/00** Control arrangements or circuits, of interest only in connection with cathode-ray tube indicators; General aspects or details, e.g. selection emphasis on particular characters, dashed line or dotted line generation; Preprocessing of data (cathode-ray oscilloscopes G01R 13/20; radar display arrangements G01S 7/04; display of digital non-picture data in television systems H04N 7/0255)

- G09G 1/04 G09G 1/04 Deflection circuits (Constructional details not otherwise provided for (electron-optical arrangements H01J 29/46, H01J 37/04, H01J 37/302))

- G09G 1/06 G09G 1/06 using single beam tubes (G09G 1/26, G09G 1/28 take precedence), e.g. three-dimensional or perspective representation, rotation or translation of display pattern, hidden lines, shadows (G09G 1/28 takes precedence; stereoscopic TV-systems, details thereof H04N 13/00; oscilloscopes for three-dimensional representation G01R 13/206; vectorscopes G01R 13/209))

**U G09G 3/00** Control arrangements or circuits, of interest only in connection with visual indicators other than cathode-ray tubes (optical scanning systems in general G02B 26/10)

- G09G 3/001 G09G 3/001 using specific devices not provided for in groups G09G 3/02 to G09G 3/36, e.g. using an intermediate record carrier such as a film slide; Projection systems; Display of non-alphanumerical information, solely or in combination with alphanumerical information, e.g. digital display on projected diapositive as background (slide projectors per se G03B 23/00 = 42 HP))

- U G09G 3/20 G09G 3/20 for presentation of an assembly of a number of characters, e.g. a page, by composing the assembly by combination of individual elements arranged in a matrix (no fixed position being assigned to or needed to be assigned to the individual characters or partial characters)

- U G09G 3/22 G09G 3/22 using controlled light sources

- U G09G 3/28 G09G 3/28 using luminous gas-discharge panels, e.g. plasma panels

- U G09G 3/288 G09G 3/288 using AC panels

**WARNING**

This groups is incomplete pending reclassification; see also group G09G 3/28

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using self-shift panels (with sequential transfer of the discharges from an input position to a further display position (tubes therefore H01J 17/49))

Instruments in which the tones are generated by means of electronic generators (G10H 7/00 takes precedence)

{Real-time simulation of G10B, G10C, G10D-type instruments using recursive or non-linear techniques, e.g. waveguide networks, recursive algorithms (establishing the harmonic content of tones by non-linear elements G10H 1/16; synthesising waveforms using a recursive algorithm G10H 7/12)}

Devices in which sound is produced by striking a resonating body, e.g. bell, chimes, gong (combinations with clocks or watches G04B, G04C; carillons G10F 1/10; {for percussion instruments G10D 13/00})

the resonating devices having the shape of a bell, plate, rod, or tube (bells for towers G10K 1/28)

electrically operated {(self-interrupting relays H01H 51/34)}

the sounding member being a bell

Operating or striking mechanisms therefor

for timed or repeated operation {(alarm-clocks G04C 21/00)}

mechanically operated; Hand bells; Bells for animals

Operating or striking mechanisms therefor

for timed or repeated operation {(alarm-clocks G04B 23/00)}

Sirens

in which the sound-producing member is driven by a fluid, e.g. by a compressed gas {(fluidically operated vibrators B06B 1/18)}

Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horn, vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers H04R (arrangement or adaptation for ships B63B 45/08; mechanically driven vibrators B06B 1/10))

electrically operated

NOTE
This group does not cover the construction of, or circuits for, broadband-transducers such as loudspeakers or microphones, which are covered by subclass H04R.

using piezo-electric driving means {(G10K 9/121 takes precedence)}

using magnetostrictive driving means {(G10K 9/121 takes precedence)}

Details, e.g. bulb, pump, piston, switch, casing {(cones, diaphragms G10K 13/00)}
U G10K 11/00 Methods or devices for transmitting, conducting, or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general (protective devices for the ears A61F 11/06; sound insulation for vehicles B60R 13/08; sound insulation for aircraft B64C 1/40; sound insulating materials, see the relevant places, e.g. C04B 26/00 to C04B 38/00; reduction of noise on permanent way E01B 19/00; absorption of air-transmitted noise from road or railway traffic E01F 8/00; noise insulation, absorption or reflection in buildings E04B 1/74; room acoustics E04B 1/99; sound insulation in floors E04F 15/20; gas-flow silencers or exhaust apparatus for machines or engines in general, for internal-combustion engines F01N; intake silencers for internal-combustion engines F02M 35/00; suppression of undesired vibrations F16F 7/00 to G10K 15/00; preventing noise in valves F16K 47/02; noise absorbers in pipes F16L 55/02; arrangements for suppressing noise in direct-contact trickle coolers F28C 1/10; silencers for weapons F41)

U G10K 11/18 · Methods or devices for transmitting, conducting, or directing sound (G10K 11/02, G10K 11/36 take precedence; medical stethoscopes A61B 7/02)

G10K 11/26 · · Sound-focusing or directing, e.g. scanning (horns for impedance matching G10K 11/02; megaphones G10K 11/08)

G10K 11/28 · · · using reflection, e.g. parabolic reflector (hearing aids A61F 11/008)

G10K 11/34 · · · using electrical steering of transducer arrays, e.g. beam steering (constructional aspects B06B 1/0607, B06B 1/085)

U G10K 15/00 Acoustics not otherwise provided for

G10K 15/08 · Arrangements for producing a reverberation or echo sound ((modifying acoustic properties to change reverberation time G10K 11/002))

Project: N/A (G11B)

U G11B 3/00 Recording by mechanical cutting, deforming or pressing, e.g. of grooves or pits; Reproducing by mechanical sensing; Record carriers therefor (G11B 11/00, G11B 13/00) take precedence; recording by cutting or deforming using laser beam G11B 7/00, using electron beam G11B 9/10)

U G11B 3/02 · Arrangements of heads (styli G11B 3/44)

G11B 3/04 · · Multiple, convertible, or alternative transducing arrangements (contains no documents see G11B 3/42)

G11B 3/08 · · Raising, lowering, traversing otherwise than for transducing, arresting, or holding-up heads against record carriers (for transducing G11B 3/12, G11B 3/34)

G11B 3/10 · · Arranging, supporting, or driving of heads or of transducers relatively to record carriers (guiding record carriers G11B 17/00, driving record carriers G11B 19/00)

U G11B 3/30 · · · Supporting in an inoperative position

G11B 3/31 · · · · Construction of arms (for transmitting, directing or amplifying sound G11B 3/003)

U G11B 3/44 · Styli, e.g. sapphire, diamond

G11B 3/46 · · Constructions or forms (Disposition or mounting), e.g. attachment of point to shank (attachment of stylus directly to transducer H04R 1/16)

G11B 3/64 · Re-recording, i.e. transcribing information from one grooved record carrier on to one or more similar or dissimilar record carriers (by varying the order of the information G11B 27/029, G11B 27/036)
Project: N/A (G11B)  CPC - 2015.05

U G11B 5/00  Recording by magnetisation or demagnetisation of a record carrier; Reproducing by magnetic means; Record carriers therefor (G11B 11/00 (and G11B 13/00) take precedence)

NOTE
Subgroups G11B 5/02 to G11B 5/86 take precedence over subgroups G11B 5/004 to G11B 5/016

U G11B 5/127  · · Structure or manufacture of heads, e.g. inductive

U G11B 5/187  · · Structure or manufacture of the surface of the head in physical contact with, or immediately adjacent to the recording medium; Pole pieces; Gap features (G11B 5/265, G11B 5/29 , G11B 5/31 take precedence)

G11B 5/23  · · · Gap features (G11B 5/1871, G11B 5/1875, G11B 5/265 , G11B 5/29, G11B 5/488 and subgroups, G11B 5/4907 and subgroups, G11B 5/4969 and subgroups take precedence)

G11B 5/235  · · · · Selection of material for gap filler (G11B 5/232 takes precedence)

G11B 5/245  · · · comprising means for controlling the reluctance of the magnetic circuit (in a head with single gap, for co-operation with one track; (G11B 5/255 takes precedence; for plural gaps or plural tracks G11B 5/127, G11B 5/265, G11B 5/29, G11B 5/49 and subgroups)

G11B 5/255  · · · comprising means for protection against wear (in thin film structures G11B 5/3106)

G11B 5/31  · · using thin films (G11B 5/1274, G11B 5/1278, G11B 5/1874, G11B 5/1875, G11B 5/33, G11B 5/49 take precedence; magnetic thin film structures H01F 10/00)

G11B 5/41  · · Cleaning of heads (of record carriers G11B 23/50)

G11B 5/455  · · Arrangements for functional testing of heads (testing of the manufacturing process G11B 5/127); Measuring arrangements for heads (measuring electric or magnetic properties G01R; measuring properties for shaping or assembling elements G11B 5/127)

G11B 5/48  · · Disposition or mounting of heads (or head supports) relative to record carriers (mounting of head within housing G11B 5/105; arrangements of heads, e.g. for scanning the record carrier to increase the relative speed (driving of both record carriers and head G11B 15/18; guiding record carriers G11B 15/60; head selecting circuits G11B 15/12))

G11B 5/58  · · with provision for moving the head for the purpose of maintaining alignment of the head relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following (spacing means incorporated in the head structure G11B 5/187, G11B 5/255, G11B 5/3106)

U G11B 5/584  · · · for track following on tapes

U G11B 5/588  · · · · by controlling the position of the rotating heads (by controlling the speed of the record carrier G11B 15/467; by controlling speed of the heads G11B 15/473; by moving the transducing part of the head relative to the headwheel, in the direction of the scanning movement G11B 15/1841)

G11B 5/592  · · · · · using bimorph elements supporting the heads (see provisional also G11B 5/588)

G11B 5/596  · · · · · for track following on disks (G11B 5/5526, G11B 5/5552, G11B 5/5565, G11B 5/5582 take precedence)

NOTE
For groups G11B 5/59605 to G11B 5/59633, see provisionally G11B 5/5521 and G11B 5/596
G11B 5/86  ·  Re-recording, i.e. transcribing information from one magnetisable record carrier on to one or more similar or dissimilar record carriers [(by varying the order of the information G11B 27/029, G11B 27/036)]

G11B 7/00  Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation (by modifying optical properties or the physical structure), reproducing using an optical beam at lower power (by sensing optical properties); Record carriers therefor; (G11B 11/00, G11B 13/00 take precedence)

G11B 7/004  ·  Recording, reproducing or erasing methods; Read, write or erase circuits therefor [(magneto-optical systems G11B 11/105)]

U  G11B 7/12  ·  Heads, e.g. forming of the optical beam spot or modulation of the optical beam (disposition or mounting of head elements within housing or with provision for moving of light source, optical beam or detector, irrelevant to the transducing method G11B 7/08; (modulating lasers H01S 3/10; controlling the intensity, colour, phase, polarisation or direction of light beams arriving from an independent light source, e.g. switching gating or modulating G02F 1/00)]

U  G11B 7/123  ·  the integrated head arrangements including waveguides

G11B 7/124  ·  Optical beam sources therefor, e.g. laser control circuitry specially adapted for optical storage devices; Modulators, e.g. means for controlling the size or intensity of optical spots or optical traces [(electro-, magneto-, or acousto-optical modulators G02F 1/00; optical diaphragms G03B 9/02)]

WARNING  For all subgroups of G11B 7/125, see also provisional G11B 7/125

G11B 7/127  ·  Lasers; Multiple laser arrays [(lasers per se H01S)]

G11B 7/13  ·  Optical detectors therefor [(optical detectors per se G01J; demodulating light, transferring the modulation of modulated light, frequency changing of light G02F 2/00)]

WARNING  For all subgroups of G11B 7/13, see provisional also G11B 7/13

U  G11B 7/135  ·  Means for guiding the beam from the source to the record carrier or from the record carrier to the detector

WARNING  For all subgroups of G11B 7/135, see provisional also G11B 7/135

G11B 7/1353  ·  Diffractive elements, e.g. holograms or gratings [(diffraction gratings per se G02B 5/18; holograms per se G02B 5/32; grating systems G02B 27/44)]

U  G11B 7/1372  ·  Lenses

G11B 7/1374  ·  Objective lenses [(optical objectives per se G02B 9/00)]

G11B 7/1376  ·  Collimator lenses [(collimators per se G02B 27/30)]

G11B 7/1392  ·  Means for controlling the beam wavefront, e.g. for correction of aberration [(optical systems for aberration correction per se G02B 27/00)]
Recording on or reproducing from the same record carrier wherein for these two operations the methods are covered by different main groups of groups G11B 3/00 to G11B 7/00 or by different subgroups of group G11B 9/00; Record carriers therefor (driving or moving of heads G11B 3/02, G11B 5/48, G11B 7/08, G11B 21/02)

NOTES
1. Groups G11B 11/00 to G11B 11/14 mainly cover:
   • combined systems or apparatus comprising both recording and reproducing using different methods;
   • record carriers therefor.

2. Reading only or recording only using mechanical, magnetic, optical or other methods is covered by groups G11B 3/00 to G11B 9/08.

G11B 11/03
   • using recording by deforming with non-mechanical means, e.g. laser, beam of particles (G11B 11/002 takes precedence; see provisional also G11B 3/68 to G11B 3/72)

G11B 11/08
   • using recording by electric charge or by variation of electric resistance or capacitance (G11B 11/002, G11B 11/10 take precedence)

G11B 11/16
   • using recording by mechanical cutting, deforming or pressing (G11B 11/002 takes precedence)

G11B 15/00 Driving, starting or stopping record carriers of filamentary or web form; Driving both such record carriers and heads; Guiding such record carriers or containers therefor; Control thereof; Control of operating function (driving or guiding heads G11B 3/00 to G11B 7/00, G11B 21/00)

G11B 15/02
   • Control of operating function, e.g. switching from recording to reproducing

G11B 15/12
   • Masking of heads; {circuits for}Selecting or switching of heads between operative and inoperative functions or between different operative functions or for selection between operative heads; Masking of beams, e.g. of light beams (track selection by moving the magnetic head G11B 5/54)

G11B 15/18
   • Driving; Starting; Stopping; Arrangements for control or regulation thereof (G11B 15/56 takes precedence; handling tapes or filamentary material in general B65H 23/00)

G11B 15/38
   • Driving record carriers by pneumatic means (pneumatic control for capstans driving the record carrier by frictional contact G11B 15/285)

G11B 15/46
   • Controlling, regulating, or indicating speed (dependent on position of tape in reserve, loop G11B 15/56, G11B 15/58)

G11B 15/467
   • in arrangements for recording or reproducing wherein both record carriers and heads are driven (see provisional also G11B 15/1808)

G11B 15/60
   • Guiding record carrier (guiding devices structurally associated with magazines or cassettes G11B 23/04)

G11B 15/66
   • Threading; Loading; Automatic self-loading

G11B 15/665
   • by extracting loop of record carrier from container

G11B 15/6653
   • {to pull the record carrier against drum}

G11B 15/6655
   • • • • {using one loading ring, i.e. ”C-type“ (G11B 15/6658 takes precedence)}

G11B 15/70
   • The record carrier being an endless loop record carrier (inside container G11B 15/1891)

G11B 17/00 Guiding record carriers not specifically of filamentary or web form, or of supports therefor (guiding cards or sheets G06K 13/00)

G11B 17/02
   • Details

G11B 17/022
   • Positioning or locking of single discs
U G11B 17/028  · · · of discs rotating during transducing operation
G11B 17/03  · · · · in containers or trays ((G11B 17/032, G11B 17/035 take precedence))
G11B 17/032  · · · · Positioning by moving the door or the cover ((G11B 17/035 takes precedence))
G11B 17/04  · · Feeding or guiding single record carrier to or from transducer unit ((guiding during transducing operation G11B 17/34))
G11B 17/32  · · · · Maintaining desired spacing between record carrier and head, e.g. by fluid-dynamic spacing ((damping of vibrations of record carriers on turntables by fluid-dynamic means G11B 19/2018))

U G11B 20/00  Signal processing not specific to the method of recording or reproducing; Circuits therefor
U G11B 20/10  · · Digital recording or reproducing (digital computers in which at least part of the computation is effected electrically, arrangements for handling digital data G06F; transmission of digital information H04L)
G11B 20/12  · · Formatting, e.g. arrangement of data block or words on the record carriers ((within interface between computers and data recorders G06F 3/06))
G11B 20/24  · · for reducing noise ((control of amplification in general, e.g. dependent upon noise level H03G))

U G11B 27/00  Editing; Indexing; Addressing; Timing or synchronising; Measuring tape travel
G11B 27/002  · · (Programmed access in sequence to a plurality of record carriers or indexed parts, e.g. tracks, thereof; e.g. for editing; (transfer of record carriers from magazine G11B 15/68, G11B 17/10; G11B 17/22))
U G11B 27/02  · · Editing, e.g. varying the order of information signals recorded on, or reproduced from, record carriers (arrangements for sorting or merging computer data on continuous record carriers G06F 7/22; mixing of video signals H04N 5/265)

WARNING
For groups G11B 27/022 to G11B 27/038, see provisionally also G11B 27/02, G11B 27/029 and G11B 27/036

G11B 27/04  · · using differential drive of record carrier and head ((transferred to G11B 15/1875))
U G11B 27/10  · · Indexing; Addressing; Timing or synchronising; Measuring tape travel
U G11B 27/11  · · by using information not detectable on the record carrier
U G11B 27/13  · · · · the information being derived from movement of the record carrier, e.g. using tachometer
G11B 27/15  · · · · using mechanical sensing means ((see provisionally also G11B 27/13))
G11B 27/17  · · · · using electrical sensing means ((see provisionally also G11B 27/13))
G11B 27/36  · · Monitoring, i.e. supervising the progress of recording or reproducing ((for digital recording G11B 20/00 and s.gr.; for monitoring, testing or measuring of TV recorders of the type covered by H04N 5/76 and subgroups, see H04N 17/06))

U G11B 33/00  Constructional parts, details or accessories not provided for in the preceding groups (containers, packaging elements or packages specially adapted for record carriers B65D 85/00)
U G11B 33/02  · · Cabinets; Cases; Stands; Disposition of apparatus therein or thereon (furniture aspects A47B, e.g. A47B 81/06; (showing stands, hangers or shelves adapted for particular articles A47F 7/00; albums for record carriers, e.g. discs B42F 5/005; suspended filing appliances for record carriers, e.g. discs B42F 15/0005; fastening devices for wings, e.g. covers E05C; for holding wings in one or more opened positions E05C 17/00; hinges E05D; closers or openers of wings, e.g. with braking or counter-balancing devices E05F))
G11B 33/04 · · modified to store record carriers { (containers, storing means adapted for cooperation with the recording or reproducing apparatus G11B 23/02) }

G11B 33/10 · · Indicating arrangements; Warning arrangements { (G11B 15/04 , G11B 19/04 , G11B 27/34 , G11B 27/36 take precedence) }

U G11B 33/14 · · Reducing influence of physical parameters, e.g. temperature change, moisture, dust

U G11B 33/1446 · · { Reducing contamination, e.g. by dust, debris }

G11B 33/1466 · · · { sealing gaskets, (gasket in general F16J) }

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Project: N/A (G11C)

U G11C 5/00 Details of stores covered by G11C 11/00

U G11C 5/14 · Power supply arrangements (in general G05F , H02J , H02M), (e.g. Power down/chip (de)selection, layout of wiring/power grids, multiple supply levels)

G11C 5/143 · · { Detection of memory cassette insertion/removal; Continuity checks of supply and ground lines (in general G01R 31/02); Detection of supply variations/ interruptions/levels (G11C 5/148 takes precedence); Switching between alternative supplies (back-up supplies per se H02J 9/061), (G11C 5/141 takes precedence) }

U G11C 8/00 Arrangements for selecting an address in a digital store (for stores using transistors G11C 11/407 , G11C 11/413 ; { switching or gating circuits for general use H03K 17/00) }

G11C 8/04 · using a sequential addressing device, e.g. shift register, counter { (FIFO G06F 5/06 ; LIFO G06F 7/78 ; multidimensional memory addressing G06F 12/027) }

G11C 8/16 · Multiple access memory array, e.g. addressing one storage element via at least independent addressing line groups { (multiport memories in general G11C 7/1075) }

U G11C 11/00 Digital stores characterised by the use of particular electric or magnetic storage elements; Storage elements therefor (G11C 14/00 to G11C 21/00 take precedence)

G11C 11/02 · using magnetic elements { (using multibit magnetic storage elements G11C 11/5607 ; counters with magnetic elements H03K 23/76 ; pulse generators, static switches, logic circuits with such elements H03K 3/45 , H03K 17/80 , H03K 19/16 ; measurement of magnetic variables G01R 33/00) }

G11C 11/04 · · using rod-type storage elements { (contains no documents; see G11C 11/06085 , G11C 11/14 , G11C 11/155) }

U G11C 11/06 · · using single-aperture storage elements, e.g. ring core; using multi-aperture plates in which each individual aperture forms a storage element

G11C 11/061 · · · using element with single aperture or magnetic loop for storage, one element per bit, and for destructive read-out { (contains no documents, see G11C 11/06007 , G11C 11/06014 , G11C 11/06021 , G11C 11/06028) }

G11C 11/063 · · · bit organised, such as 2 1/2D, 3D organisation, i.e. for selection of an element by means of at least two coincident partial currents both for reading and for writing { (contains no documents; see G11C 11/06035) }

G11C 11/065 · · · word organised, such as 2D organisation, or linear selection, i.e. for selection of all the elements of a word by means of a single full current for reading { (contains no documents; see G11C 11/06042) }

G11C 11/067 · · · using elements with single aperture or magnetic loop for storage, one element per bit, and for non-destructive read-out { (contains no documents, see G11C 11/0605 to G11C 11/0607) }

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using elements in which the storage effect is based on magnetic spin effect \{(sensors using magnetoactive multilayer structures G01R 33/093; thin layer magnetic read heads for magnetic discs G11B 5/31; non-reciprocal magnetic elements in waveguides H01P; composition of ferromagnetic material H01F 1/00; gyrators H03H 7/002)\}

using non-linear reactive devices in resonant circuits \{(contains no documents, see G11C 11/20)\}

using electric elements

using ferroelectric elements \{(using multibit ferroelectric storage elements G11C 11/5657; pulse generators using ferroelectric elements H03K 3/45; counters using such elements H03K 23/76)\}

using discharge tubes \{(counters using such elements H03K 25/00)\}

using gas-filled tubes \{(counting tubes G11C 11/265; pulse generators, electronic switches, logic circuits using such elements H03K 3/37, H03K 17/52, H03K 19/04)\}

using vacuum tubes \{(counting tubes G11C 11/265; pulse generators, electronic switches, logic circuits using such elements H03K 3/37, H03K 17/52, H03K 19/04)\}

using semiconductor devices \{(processes or apparatus for the manufacture or treatment of semiconductor or solid state devices H01L 21/00; integrated circuit devices H01L 27/00; generating electric pulses, e.g. bistable devices using semiconductor devices H03K 3/00)\}

with charge storage in a depletion layer, e.g. charged coupled devices \{(in shift registers G11C 19/282)\}

using transistors

forming (static)cells with positive feedback, i.e. cells not needing refreshing or charge regeneration, e.g. bistable multivibrator or Schmitt trigger

using field-effect transistors only \{(latent image memory G11C 7/20; multi-port cells G11C 8/160)\}

using super-conductive elements, e.g. cryotron \{(pulse generators using such elements H03K 3/38; counters H03K 23/001)\}

using displaceable coupling elements, e.g. ferromagnetic cores, to produce change between different states of mutual or self-inductance \{(contains no documents; see G11C 17/00 and subgroups)\}

Digital stores characterised by the use of storage elements not covered by groups G11C 11/00, G11C 23/00 to G11C 25/00

using elements whose operation depends upon chemical change \{(G11C 13/0009 takes precedence)\}; using electrochemical charge G11C 11/00

Digital stores characterised by arrangements of cells having volatile and non-volatile storage properties for back-up when the power is down \{(bistable elements storing the actual state when the supply voltage fails H03K 3/02335, H03K 3/0375, H03K 3/2865, H03K 3/356008)\}

Erasable programmable read-only memories \{(G11C 14/00 takes precedence)\}

electrically programmable \{(programmable multibit digital storage elements G11C 11/5621)\}
Digital stores in which the information is moved stepwise, e.g. shift register (counting chains H03K 23/00) (stack stores, push-down stores (linear pulse counters H03K 23/54, pulse distributors H03K 5/15, methods and arrangements for shifting data G06F 5/01))

- using magnetic elements (G11C 19/14 takes precedence)
- using thin films in plane structure (in thin magnetic films and apparatus or processes specially adapted for manufacturing or assembling the same H01F 10/00, H01F 41/14)
- (Generating, replicating or annihilating magnetic domains (also comprising different types of magnetic domains, e.g. "Hard Bubbles") (G11C 19/0866 takes precedence)
- using magnetic elements in combination with active elements, e.g. discharge tubes, semiconductor elements (contains no documents, see provisionally G11C 19/02 to G11C 19/10)
- using capacitors as main elements of the stages (if capacitors are used as auxiliary stage in between main stages with other elements, the latter take precedence; G11C 19/005 takes precedence)
- using storage elements with more than two stable states represented by steps, e.g. of voltage, current, phase, frequency (in RAM multistable cells G11C 11/56; in capacitive analog stores G11C 27/04)

Digital stores in which the information circulates (continuously) (stepwise G11C 19/00)

- using electromechanical delay lines, e.g. using a mercury tank (construction of such lines H03H 9/00)

Digital stores characterised by the use of flowing media; Storage elements therefor (multiple fluid-circuit element arrangements for performing digital operations F15C 1/12)

Electric analogue stores, e.g. for storing instantaneous values (integrating circuits acting as stores G06G 7/18; pulse counters with step by step integration and static storage H03K 25/00)

Checking stores for correct operation; (Subsequent repair); Testing stores during standby or offline operation (testing of electronic circuits in general G01R 31/28; error detection or error correction in computer memories during normal operation G06F 11/1008, G06F 11/1666; testing of computers during standby G06F 11/22)

WARNING
Groups G11C 29/70 to G11C 29/886 do not correspond to former or current IPC groups.
Concordance CPC : IPC for these groups is the following: - G11C 29/70 - G11C 29/886 : G11C 29/00

Reactor fuel elements and their assemblies; Selection of substances for use as reactor fuel elements

- Structural combination of fuel element with thermoelectric element for direct production of electric energy from fission heat (for temperature measurement G21C 17/10) (or with another arrangement for direct production of electric energy, e.g. a thermoionic device (combination with thermoelements for temperature measurements G21C 17/102))
U G21C 15/00 Cooling arrangements within the pressure vessel containing the core; Selection of specific coolants

G21C 15/02
- Arrangements or disposition of passages in which heat is transferred to the coolant; (Coolant flow control devices (G21C 19/04 takes precedence; coolant flow control through fuel assemblies, e.g. flow restrictors G21C 3/322))

G21C 15/28
- Selection of specific coolants (if serving as the moderator G21C 5/12; compositions per se C09K 5/00; (organic coolants G21C 5/123); (Additions to the reactor coolants, e.g. against moderator corrosion (purification and regeneration of the reactor coolants G21C 19/30))

U G21C 19/00 Arrangements for treating, for handling, or for facilitating the handling of, fuel or other materials which are used within the reactor, e.g. within its pressure vessel

U G21C 19/28
- Arrangements for introducing fluent material into the reactor core;
- Arrangements for removing fluent material from the reactor core (pumping coolant G21D)
- with continuous purification of circulating fluent material, e.g. by extraction of fission products (deterioration or corrosion products, impurities, e.g. by cold traps (purification of circulating fluid fuels G21C 19/50; separation in general B01D))

Project: N/A (G21F)

U G21F 5/00 Transportable or portable shielded containers

U G21F 5/06
- Details of, or accessories to, the containers
- Devices for handling containers or shipping-casks, e.g. transporting devices (loading and unloading, filling of containers (Cranes, load-engaging elements or devices for cranes, capstans, winches or tackles B66C))

Project: N/A (G21K)

U G21K 1/00 Arrangements for handling particles or ionizing radiation, e.g. focusing or moderating (production or acceleration of neutrons, electrically-charged particles, neutral molecular beams or neutral atomic beams H05H 3/00 - H05H 15/00)

U G21K 1/10
- Scattering devices; Absorbing devices; Ionising radiation filters
- Resonant absorbers or driving arrangements therefor, e.g. for Moessbauer-effect devices ((motors with reciprocating, oscillating or vibrating magnet, armature or coil system in general H02K 33/00))

G21K 1/16
- using polarising devices, e.g. for obtaining a polarised beam ((ion sources, ion guns H01J 27/02; polarised targets for producing nuclear reactions H05H 6/005))

Project: N/A (H01F)

U H01F 1/00 Magnets or magnetic bodies characterised by the magnetic properties thereof; Selection of materials for their magnetic properties

H01F 1/0036
- (showing low dimensional magnetism, i.e. spin rearrangements due to a restriction of dimensions, e.g. showing giant magnetoresistivity, (H01F 1/153, H01F 1/42 and H01F 10/00 take precedence; magnetoresistive sensors G01D 5/16; G01R 33/06; magnetoresistive recording G11B 5/39; magnetic-field-controlled resistors H01L 43/08))

U H01F 1/01
- of inorganic materials (H01F 1/44 takes precedence)

H01F 1/03
- characterised by their coercivity (H01F 1/40 takes precedence)

U H01F 1/032
- of hard-magnetic materials

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Non-metallic substances, e.g. ferrites (e.g. [(Ba,Sr)O(Fe$_2$O$_3$)$_6$] ferrites with hexagonal structure)

in the form of particles (for magnetic record carriers G11B 5/70626)

of soft-magnetic materials

Alloys characterised by their composition (treatment thereof for enhancing their electromagnetic properties C21D 8/12)

NOTE
In groups H01F 1/14708 to H01F 1/15391, an alloy is classified in the last appropriate place

Amorphous metallic alloys, e.g. glassy metals (making ferrous amorphous alloys C22C 33/003)

Non-metallic substances, e.g. ferrites (H01F 1/346, H01F 1/348 and H01F 1/38 take precedence)

Superconducting magnets; Superconducting coils (magnetic resonance assemblies using superconducting coil systems G01R 33/3815)

Quenching; Protection arrangements during quenching (protection circuits H02H 7/001)

Magnets (superconducting magnets H01F 6/00; for separation of solid materials or fluids B03C 1/00; for bench or like work-holders B23B 31/28, B23Q 3/00; work-holding devices B25B 11/00; lifting magnets B66C 1/00; operating or controlling locks using permanent magnets E05B 47/0038; devices for holding a wing, e.g. door or window, by magnetic or electromagnetic attraction E05C 19/16; relieving load or bearings using magnetic means F16C 39/06; for electric meters G01R; for relays H01H; for electric discharge tubes H01J, e.g. H01J 3/24, H01J 23/10, H01J 29/68; for dynamo-electric machines H02K)

Electromagnets; Actuators including electromagnets (electric coils H01F 5/00; devices for holding workpieces using electric force B23Q 3/15; load-engaging elements for lifting articles electromagnetically B66C 1/06; electromagnetic couplings F16D 27/00; magnetic brakes F16D 63/002; electromagnetically operated valves F16K 11/24, F16K 31/00; magnetically locked mine lamps F21L 11/00; analysing materials by magnetic means G01N 27/72, G01N 27/80; electromagnets for winding mechanical clocks G04C 1/02; electromagnetic relays H01H 51/00; windings for salient poles of dynamo-electric machines H02K 3/18; electromagnets for telegraphic communication H04L; for arc lamps H05B 31/28))

with armatures

Guiding or setting position of armatures, e.g. retaining armatures in their end position

by permanent magnets (H01F 7/1615, H01F 7/1646 take precedence)

Thin magnetic films, e.g. of one-domain structure (magnetic record carriers G11B 5/00; thin-film magnetic stores G11C)

characterised by magnetic layers (H01F 10/32 takes precedence); applying thin magnetic films to substrates H01F 41/14

characterised by the composition

being metal or alloys (intermetallic compounds H01F 10/18)
H01F 10/13 · · · Amorphous metallic alloys, e.g. glassy metals (H01F 10/3204 takes precedence)

NOTE
In this group, amorphous metallic alloys are classified in the last appropriate place.

U H01F 10/18 · · · being compounds

H01F 10/187 · · · Amorphous compounds (H01F 10/3204 takes precedence)

H01F 10/193 · · · Magnetic semiconductor compounds (in general H01F 1/40; multilayers, e.g. superlattices H01F 10/3213)

U H01F 10/20 · · · Ferrites

H01F 10/24 · · · · Garnets (in general H01F 1/346; multilayers, e.g. superlattices H01F 10/3209; applying magnetic garnet films to substrates by sputtering H01F 41/186)

H01F 10/26 · characterised by the substrate or intermediate layers (H01F 10/06 and H01F 10/32 take precedence)

H01F 10/32 · Spin-exchange-coupled multilayers, e.g. nanostructured superlattices (applying spin-exchange-coupled multilayers to substrates H01F 41/302)

U H01F 29/00 Variable transformers or inductances not covered by group H01F 21/00 (tap change devices H01H 9/0005)

U H01F 29/08 · with core, coil, winding, or shield movable to offset variation of voltage or phase shift, e.g. induction regulators

H01F 29/10 · · having movable part of magnetic circuit (high leakage transformers H01F 38/08; dynamo-electric machines with movable part of magnetic circuit H02K 23/44, H02K 23/48)

U H01F 38/00 Adapations of transformers or inductances for specific applications or functions

H01F 38/14 · Inductive couplings (for charging batteries from ac mains by converters H02J 7/025)

U H01F 41/00 Apparatus or processes specially adapted for manufacturing or assembling the devices covered by this subclass

U H01F 41/02 · for manufacturing cores, coils, or magnets (H01F 41/14 takes precedence; for dynamo-electric machines H02K 15/00)

U H01F 41/0206 · · (Manufacturing of magnetic cores by mechanical means (magnetic cores per se H01F 27/24))

H01F 41/0213 · · · (Manufacturing of magnetic circuits made from strip(s) or ribbon(s) (magnetic cores made by winding a ribbon H01F 27/25))

H01F 41/04 · · for manufacturing coils (coils for transformer or inductances H01F 27/28)

Project: N/A (H01J)

U H01J 1/00 Details of electrodes, of magnetic control means, of screens, or of the mounting or spacing thereof, common to two or more basic types of discharge tubes or lamps (details of electron-optical arrangements or of ion traps H01J 3/00)

U H01J 1/02 · Main electrodes

U H01J 1/30 · Cold cathodes, e.g. field-emissive cathode

H01J 1/312 · · having an electric field perpendicular to the surface, e.g. tunnel-effect cathodes of Metal-Insulator-Metal [MIM] type (H01J 1/304 to H01J 1/308 take precedence)
H01J 1/53 Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked up, converted, or stored ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/54 Screens on or from which an image or pattern is formed, picked up, converted, or stored; Luminescent coatings on vessels ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/56 · acting as light valves by shutter operation, e.g. for eidophor ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/58 · acting by discolouration, e.g. halide screen ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/60 · Incandescent screens ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/62 · Luminescent screens; Selection of materials for luminescent coatings on vessels ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/64 · · characterised by the binder or adhesive for securing the luminescent material to its supports ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/68 · · with superimposed luminescent layers ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/70 · · with protective, conductive, or reflective layers ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/72 · · with luminescent material discontinuously arranged, e.g. in dots or lines ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/74 · · · with adjacent dots or lines of different luminescent material ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/76 · · · provided with permanent marks or references ((see provisionally also H01J 29/08 to H01J 29/36))

H01J 1/78 · · Photoelectric screens; Charge-storage screens ((see provisionally also H01J 29/08 to H01J 29/36))

U H01J 3/00 Details of electron-optical or ion-optical arrangements or of ion traps common to two or more basic types of discharge tubes or lamps

H01J 3/02 · Electron guns ((electron guns for discharge tubes with provision for introducing objects or material to be exposed to the discharge H01J 37/06 ; for cathode ray tubes H01J 29/48))

H01J 3/04 · Ion guns ((see provisionally also H01J 27/00))

H01J 3/07 · Arrangements for controlling convergence of a plurality of beams ((see provisionally also H01J 29/46 to H01J 29/84))

U H01J 3/14 · Arrangements for focusing or reflecting ray or beam (H01J 3/02 , H01J 3/04 take precedence( see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/16 · · Mirrors ((see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/18 · · Electrostatic lenses ((see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/20 · · Magnetic lenses ((see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/22 · · using electromagnetic means only ((see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/24 · · using permanent magnets only ((see provisionally also H01J 29/46 to H01J 29/84))

U H01J 3/26 · Arrangements for deflecting ray or beam (circuit arrangements for producing saw-tooth pulses or other deflecting voltages or currents H03K ; { H01J 29/46 to H01J 29/84 and H01J 37/147 take precedence })

H01J 3/28 · · along one straight line or along two perpendicular straight lines (see provisionally also H01J 29/46 to H01J 29/84))

H01J 3/30 · · · by electric fields only (see provisionally also H01J 29/46 to H01J 29/84))
H01J 3/32 · · · by magnetic fields only (see provisionally also H01J 29/46 to H01J 29/84)
H01J 3/34 · · · along a circle, spiral, or rotating radial line (see provisionally also H01J 29/46 to H01J 29/84)
H01J 3/36 · · · Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration (see provisionally also H01J 29/46 to H01J 29/84)
H01J 3/38 · · · Mounting, supporting, spacing, or insulating electron-optical or ion-optical arrangements (see provisionally also H01J 29/46 to H01J 29/84)
H01J 3/40 · · · Traps for removing or diverting unwanted particles, e.g. negative ions, fringing electrons; Arrangements for velocity or mass selection (see provisionally also H01J 29/46 to H01J 29/84)

U H01J 9/00 Apparatus or processes specially adapted to the manufacture, (installation, removal, maintenance) of electric discharge tubes, discharge lamps, or parts thereof (manufacture of vessels or containers from metal B21, e.g. B21D 51/00, from glass C03B); Recovery of material from discharge tubes or lamps

U H01J 9/20 · · · Manufacture of screens on or from which an image or pattern is formed, picked up, converted or stored; Applying coatings to the vessel
H01J 9/233 · · · Manufacture of photo-electric screens or charge-storage screens (no documents, see H01J 29/36)

U H01J 9/44 · · · Factory adjustment of completed discharge tubes or lamps to comply with desired tolerances
H01J 9/445 · · · (Aging of tubes or lamps, e.g. by "spot knocking" (cathode activation H01J 9/045))

H01J 11/00 Gas-filled discharge tubes with alternating current induction of the discharge, e.g. AC-PDPs [Alternating Current Plasma Display Panels] (circuits or methods for driving PDPS G09G 3/28); Gas-filled discharge tubes without any main electrode inside the vessel; Gas-filled discharge tubes with at least one main electrode outside the vessel (discharge lamps H01J 65/00 (H01J 61/00, H01J 63/00))

NOTES
1. When classifying in this group, classification is made in all appropriate places.
2. In this group, the following term is used with the meaning indicated:
   • "main electrode" means any of a sustain electrode, scan electrode or address electrode.

U H01J 17/00 Gas-filled discharge tubes with solid cathode (H01J 25/00, H01J 27/00, H01J 31/00 to H01J 41/00 (H01J 11/00) take precedence; gas or vapour discharge lamps H01J 61/00; gas filled spark gaps H01T; Marx converters H02M 7/26; tubes for generating potential differences by charges carried in a gas stream H02N)

U H01J 17/38 · · · Cold-cathode tubes (TR boxes H01J 17/64)
H01J 17/40 · · · with one cathode and one anode, e.g. glow tube, tuning-indicator glow tube, voltage-stabiliser tube, voltage-indicator tube, (cathode-glow lamps H01J 61/04)

U H01J 27/00 Ion beam tubes (H01J 25/00, H01J 33/00, H01J 37/00 take precedence; particle accelerators H05H)
U H01J 27/02 · Ion sources; Ion guns (for examination or processing discharge tubes H01J 37/08; ion sources, ion guns for particle spectrometer or separator tubes H01J 49/10; ion propulsion F03H 1/00); arrangements for handling particles, e.g. focusing, [charge exchanging, polarising], G21K 1/00; generating ions to be introduced into non-enclosed gases H01T 23/00; generating plasma H05H 1/24)

H01J 27/04 · · using reflex discharge, e.g. Penning ion sources (for Electron bombardment ion sources H01J 27/08)

U H01J 29/00 Details of cathode-ray tubes or of electron-beam tubes of the types covered by group H01J 31/00

U H01J 29/02 · Electrodes; Screens; Mounting, supporting, spacing or insulating thereof

U H01J 29/10 · · Screens on or from which an image or pattern is formed, picked up, converted or stored

U H01J 29/18 · · · Luminescent screens

H01J 29/187 · · · (screens with more than one luminescent material (as mixtures for the treatment of the screens) (for several superimposed luminescent layers H01J 29/26; for adjacent dots or lines of different luminescent material H01J 29/32))

H01J 29/20 · · · characterised by the luminescent material (for luminescent screens for X-ray purposes G21K 4/00)

U H01J 29/26 · · Photoelectric screens; Charge-storage screens

H01J 29/36 · · · not using charge storage, e.g. photo-emissive screen, extended cathode (for electrodes using photo-emission in general H01J 1/34)

H01J 29/39 · · · Charge-storage screens ([H01J 29/395 takes precedence])

H01J 29/41 · · · · using secondary emission, e.g. for supericonoscope ([electrodes using secondary emission in general H01J 1/32; secondary emission tubes H01J 43/00])

H01J 29/44 · · · · exhibiting internal electric effects caused by particle radiation, e.g. bombardment-induced conductivity (for particle detectors exhibiting internal electric effects G01T 1/26)

H01J 29/45 · · · · exhibiting internal electric effects caused by electromagnetic radiation, e.g. photo-conductive screen, photo-dielectric screen, photovoltaic screen (for photoconductive layers for electrography G03G 5/00)

H01J 29/46 · Arrangements of electrodes and associated parts for generating or controlling the ray or beam, e.g. electron-optical arrangement ([transit time tubes H01J 23/00, H01J 25/00; X-ray tubes H01J 35/00; beam tubes for examining ions, e.g. electron or ion microscopes, or processing of objects or materials e.g. electron or ion beam tubes H01J 37/04; electron multipliers H01J 43/04; handling of radiation or particles, e.g. focusing, deviating, not otherwise provided for G21K 1/00])

H01J 29/52 · · Arrangements for controlling intensity of ray or beam, e.g. for modulation ([H01J 29/467 takes precedence])

H01J 29/54 · · Arrangements for centring ray or beam ([H01J 29/467 takes precedence])

H01J 29/56 · · Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses ([H01J 29/467 takes precedence])

H01J 29/58 · · Arrangements for focusing or reflecting ray or beam ([H01J 29/467, H01J 29/585 take precedence])

H01J 29/80 · · Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration, for colour switching ([H01J 29/701 takes precedence])

U H01J 29/86 · Vessels; Containers; Vacuum locks
· Optical or photographic arrangements structurally combined (or co-operating) with the vessel (H01J 29/866 and H01J 29/868 take precedence)

· Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube e.g. by gettering (exhausting, degassing, gettering of electric discharge tubes in general H01J 9/38)

U H01J 31/00 Cathode ray tubes; Electron beam tubes (H01J 25/00, H01J 35/00, H01J 37/00 take precedence; cathode ray or electron stream lamps H01J 63/00; details of cathode ray tubes or of electron beam tubes H01J 29/00)

· having one or more output electrodes which may be impacted selectively by the ray or beam, and onto, from, or over which the ray or beam may be deflected or de-focused (pulse counting circuits therewith H03K 29/06)

· having a screen on or from which an image or pattern is formed, picked up, converted, or stored

· Image or pattern display tubes, i.e. having electrical input and optical output; Flying-spot tubes for scanning purposes

· with luminescent screen

· Magic-eye or analogous tuning indicators (mounting of visual indicators in a radio set H03J 1/04; circuits for timing indicators H03J 3/14)

· with ray or beam selectively directed to luminescent anode segments (printing by application of radiation B4J 2/447)

· with mask carrying a number of selectively displayable signs, e.g. charactron, numeroscope (tubes with a mask carrying a matrix of openings, a selection of which permits a sign to be displayed H01J 31/128)

· with image written by a ray or beam on a grid-like charge-accumulating screen, and with a ray or beam passing through and influenced by this screen before striking the luminescent screen, e.g. direct-view storage tube (charge storage grids exhibiting triode effect H01J 29/395)

· for displaying images or patterns in two or more colours (circuits for colour television H04N 9/16 to H04N 9/28)

· with screen acting as light valve by shutter operation, e.g. eidophor (projection arrangements for image reproduction, e.g. using eidophor H04N 5/74)

· Image pick-up tubes having an input of visible light and electric output (tubes without defined electron beams and having a light ray scanning photo-emissive screen H01J 40/20)

· Tubes in which electrical output represents both intensity and colour of image (colour television cameras with only one tube H04N 9/07)

· Tubes for storage of image or information pattern or for conversion of definition of television or like image, i.e. having electrical input and electrical output (electrostatic memories using electron beam tubes G11C 11/23)

U H01J 33/00 Discharge tubes with provision for emergence of electrons or ions from the vessel (irradiation devices G21K; particle accelerators H05H; Lenard tubes

H01J 33/02 Details (vessels for operation at high tension H01J 5/06)

U H01J 35/00 X-ray tubes (X-ray lasers H01S 4/00; X-ray technique in general H05G, e.g. apparatus or processes specially adapted for producing X-rays, not involving X-ray tubes, e.g. involving generation of a plasma H05G 2/00)

U H01J 35/02 Details
U H01J 35/04 · Electrodes (mutual position thereof and constructional adaptations of the electrodes therefor)

H01J 35/06 · Cathodes {(electron guns in general H01J 3/02)}

H01J 35/08 · Anodes; Anti cathodes {(anti-cathodes serving as windows H01J 35/18)}

H01J 35/12 · Cooling non-rotary anodes {(mounting the tube within a closed housing, e.g. for cooling purposes H05G 1/04)}

H01J 35/14 · Arrangements for concentrating, focusing, or directing the cathode ray {(for cathode ray tubes in general H01J 29/46)}

H01J 35/16 · Vessels; Containers; Shields associated therewith {(vessels for high tension operation in general H01J 5/06; mounting the tube within a closed housing H05G 1/04)}

H01J 35/20 · Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube, e.g. by gettering {(for gas-discharge tubes in general H01J 7/02 to H01J 61/76; evacuating, filling, gettering in general H01J 9/38)}

U H01J 37/00 Discharge tubes with provision for introducing objects or material to be exposed to the discharge, e.g. for the purpose of examination or processing thereof (H01J 33/00, H01J 40/00, H01J 41/00, H01J 47/00, H01J 49/00 take precedence; {scanning-probe techniques or apparatus G01Q}; contactless testing of electronic circuits using electron beams G01R 31/305; {particle accelerators H05H})

U H01J 37/02 · Details

H01J 37/04 · Arrangements of electrodes and associated parts for generating or controlling the discharge, e.g. electron-optical arrangement, ion-optical arrangement {{electron or ion-optical systems for localised treatment of materials H01J 37/3007; discharge control means in gas filled discharge tubes H01J 37/32009}}

H01J 37/06 · Electron sources; Electron guns {{electron sources in general H01J 1/02, H01J 19/02; electron guns in general H01J 3/02}}

H01J 37/18 · Vacuum locks; {Means for obtaining or maintaining the desired pressure within the vessel (vacuum locks for electron-beam tubes in general H01J 29/865)}

H01J 37/20 · Means for supporting or positioning the objects or the material; Means for adjusting diaphragms or lenses associated with the support {{introducing the objects H01J 37/18; preparing specimens for investigation G01N 1/06, G01N 1/28}}

H01J 37/21 · Means for adjusting the focus {{adjusting the focus while observing the image by photographic or optical means H01J 37/22; means for observing the object or the point of impact on the object in tubes for the localised treatment of materials H01J 37/3005}}

H01J 37/22 · Optical or photographic arrangements associated with the tube {{using a CRT for the display of the image in a scanning electron microscope H01J 37/28; observing the object or the point of impact on the object in tubes for the localised treatment of materials H01J 37/3007}}

U H01J 37/30 · Electron-beam or ion-beam tubes for localised treatment of objects

H01J 37/305 · for casting, melting, evaporating or etching {{methods for casting or melting of metals with electron beam or gas discharges C22B 9/22}}

H01J 37/31 · for cutting or drilling {{methods for cutting or drilling metals with electron beams B23K 15/00}}

H01J 37/315 · for welding {{methods for welding metals with electron beams B23K 15/00}}
Gas-filled discharge tubes, (e.g. for surface treatment of objects such as coating, plating, etching, sterilising or bringing about chemical reactions) (general methods or devices for heat treatments of ferrous or non-ferrous metals or alloys by cathodic discharges C21D 1/38; methods of carburising or nitriding of metals in general C23C 8/00; methods for coating, plating or surface treating of or with metallic material C23C 8/36, C23C 14/32, C23C 16/50; methods for coating, plating or surface treating of or with semiconductors H01L 21/00; heating by discharge H05B).

for cleaning surfaces while plating with ions of materials introduced into the discharge, e.g. introduced by evaporation (condensing of electrically charged vapour onto a surface for covering materials with metals C23C 14/32).

Secondary-emission tubes; Electron-multiplier tubes (dynamic electron-multiplier tubes H01J 25/76; secondary-emission detectors for measurement of nuclear or X-radiation G01T 1/28).

Electron multipliers (if forming part of electron gun H01J 3/023).

Electrode arrangements.

Electrode arrangements using essentially more than one dynode.

Dynodes having potential gradient along their surfaces (Micro-channel plates [MCP] (image amplification tubes using MCP H01J 31/507)).

Discharge tubes functioning as thermionic generators (structural combination of fuel element with thermoelectric element G21C 3/40; nuclear power plants using thermionic converters G21D 7/04; structural combination of a radioactive source with a thermionic converter, e.g. radioisotope batteries G21H 1/10; generators in which thermal or kinetic energy is converted into electrical energy by ionisation of a fluid and removal of the charge therefrom H02N 3/00).

Tubes for determining the presence, intensity, density or energy of radiation or particles (discharge tubes using igniting by associated radioactive materials or fillings, e.g. current stabilising tubes H01J 17/32; photoelectric discharge tubes not involving the ionisation of a gas H01J 40/00; discharge tubes for measuring the pressure, partial pressure of introduced gas or for detecting presence of gas H01J 41/02; ionisation chambers using a solid dielectric G01T 3/008).

Geiger-Müller counter tubes (gas filling with very short deionisation times H01J 17/64, H01T).

Parallel electrode spark or streamer chambers; Wire spark or streamer chambers (circuit arrangements with multi-wire or parallel-plate chambers for recording of movements or tracks of particles G01T 5/12).

NOTE
In classifying particle separators, no distinction is made between spectrometry and spectrography, the difference being only in the manner of detection which in the first case is electrical and in the second case is by means of a photographic film.

Details.

Circuit arrangements, e.g. for generating deviation currents or voltages (regulating electric or magnetic variables in general e.g. current, magnetic field G05F); Components associated with high voltage supply (high voltage supply per se H02M).

Ion sources; Ion guns.
... using surface ionisation, e.g. field-, thermionic- or photo-emission

{using photoionisation, e.g. by laser}

{Laser desorption/ionisation, e.g. matrix-assisted laser desorption/ ionisation [MALDI] (sample holders H01J 49/0418)}

{Electrospray ionisation}

{Laser desorption/ionisation, e.g. matrix-assisted laser desorption/ ionisation [MALDI] (sample holders H01J 49/0418)}

{Capillaries and nozzles specially adapted therefor; (electrostatic spraying per se R05B 5/00)}

Gas- or vapour-discharge lamps (use for sterilising milk products A23C; use for medical purposes A61N 5/00; use for disinfecting water C02F; use for lighting F21; { use for advertising G09F}; circuits therefor H05B; arc lamps with consumable electrodes H05B; electro-luminescent lamps H05B)

Details

Vessels; Containers

Special longitudinal shape, e.g. for advertising purposes {((H01J 61/305 takes precedence)}

Cooling arrangements; Heating arrangements; Means for circulating gas or vapour within the discharge space {((heating or cooling arrangements to promote ionisation for starting H01J 61/54)}

Lamps without any electrode inside the vessel; Lamps with at least one main electrode outside the vessel

Lamps in which a screen or coating is excited to luminesce by radioactive material located inside the vessel {((direct conversion of radiation energy from radioactive sources into light G21H 3/02)}

Discharge tubes exposing object to beam, e.g. for analysis treatment, etching, imaging

NOTES
1. For features of general interest which may be found in other types of discharge tubes, an indexing code corresponding to general schemes H01J 2201/00 to T011J207/00 is given, e.g. for cathodes, vessels, cooling means or the like
2. Same rules apply for manufacturing procedures (H01J 2209/00), unless really specific to the tube concerned.
3. The codes in this main group are grouped according to the following principle: details common to gas or plasma discharge of the above mentioned tubes: H01J 2237/00 to T011J237/248D2
   Imaging or analysing: H01J 2237/25 to H01J 2237/2857
   particle beam processing: H01J 2237/30 to H01J 2237/31798
   plasma processing: H01J 2237/32 to H01J 2237/339

Details of gas supplies - e.g. in an ion source, to a beam line, to a specimen or to a workpiece, (H01J 37/3244 takes precedence; environmental cells for electron microscopes H01J 2237/2003; microscopes with environmental specimen chamber H01J 2237/2608)
Project: N/A (H01L)

**U H01L 21/00** Processes or apparatus adapted for the manufacture or treatment of semiconductor or solid state devices or of parts thereof (testing or measuring during manufacture or treatment, or reliability measurements H01L 22/00; multistep manufacturing processes for passive two-terminal components without a potential-jump or surface barrier for integrated circuits H01L 28/00; processes or apparatus peculiar to the manufacture or treatment of devices provided for in groups H01L 31/00 to H01L 51/00 or of parts thereof, see these groups; single-step processes covered by other subclasses, see the relevant subclasses, e.g. C23C, C30B; photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general G03F)

**U H01L 21/02** Manufacture or treatment of semiconductor devices or of parts thereof

**U H01L 21/04** the devices having at least one potential-jump barrier or surface barrier, e.g. PN junction, depletion layer, carrier concentration layer (multistep processes specially adapted for the manufacture of said devices H01L 29/66007, H01L 29/401; details of semiconductor bodies H01L 29/02))

**U H01L 21/0445** (the devices having semiconductor bodies comprising crystalline silicon carbide (multistep processes for the manufacture of said devices H01L 29/66053))

**U H01L 21/0475** (Changing the shape of the semiconductor body, e.g. forming recesses, (etching of the semiconductor body H01L 21/302))

**U H01L 21/18** the devices having semiconductor bodies comprising elements of the fourth group of the Periodic System or AlIIIBV compounds with or without impurities, e.g. doping materials ((H01L 21/041 to H01L 21/0425, H01L 21/045 to H01L 21/048 take precedence))

**NOTE**
This group covers also processes and apparatus which, by using the appropriate technology, are clearly suitable for manufacture or treatment of devices whose bodies comprise elements of the fourth group of the Periodic System or AlIIIBV compounds, even if the material used is not explicitly specified.

**U H01L 21/22** Diffusion of impurity materials, e.g. doping materials, electrode materials, into or out of a semiconductor body, or between semiconductor regions; (interactions between two or more impurities; Redistribution of impurities)

**U H01L 21/26** Bombardment with radiation ((H01L 21/3105 takes precedence))

**U H01L 21/263** with high-energy radiation (H01L 21/261 takes precedence)

**U H01L 21/265** producing ion implantation (ion beam tubes for localised treatment H01J 37/30)

**WARNING**
The groups H01L 21/26566, H01L 21/2658 and H01L 21/26593 are not complete, see provisionally also H01L 21/26506 and H01L 21/2654 and their subgroups
H01L 21/266 - - - - - - using masks {(H01L 21/26586 takes precedence)}
U  H01L 21/30 - - - - Treatment of semiconductor bodies using processes or apparatus not provided for in groups H01L 21/20 to H01L 21/26 (manufacture of electrodes thereon H01L 21/28)
U  H01L 21/302 - - - - - - to change their surface-physical characteristics or shape, e.g. etching, polishing, cutting
H01L 21/304 - - - - - - Mechanical treatment, e.g. grinding, polishing, cutting {(H01L 21/30625 takes precedence)}
U  H01L 21/50 - - - - Assembly of semiconductor devices using processes or apparatus not provided for in a single one of the subgroups H01L 21/06 to H01L 21/326, e.g. sealing of a cap to a base of a container
NOTE Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by H01L 24/00
H01L 21/58 - - - - {Insulative} mounting semiconductor devices on supports {(H01L 21/563, H01L 23/49513 take precedence)}
WARNING This group is no longer used for the classification of new documents as from June 1, 2010. The backlog of this group is being continuously reclassified to H01L 24/80 and subgroups
U  H01L 21/67 - - - - Apparatus specially adapted for handling semiconductor or electric solid state devices during manufacture or treatment thereof; Apparatus specially adapted for handling wafers during manufacture or treatment of semiconductor or electric solid state devices or components; Apparatus not specifically provided for elsewhere (processes per se H01L 21/30, H01L 21/46, H01L 23/00; simple temporary support means, e.g. using adhesives, electric or magnetic means H01L 21/68, H01L 21/302; apparatus for manufacturing arrangements for connecting or disconnecting semiconductor or solid-state bodies and for methods related thereto H01L 24/74;)
NOTE In this subgroup the term substrate designates a semiconductor or electric solid state device or component, or a wafer
U  H01L 21/683 - - - - - - for supporting or gripping (for conveying H01L 21/677, for positioning, orientation or alignment H01L 21/68)
H01L 21/687 - - - - - - using mechanical means, e.g. chucks, clamps or pinches {(using electrostatic chucks H01L 21/68311)}
U  H01L 21/70 - - - - Manufacture or treatment of devices consisting of a plurality of solid state components formed in or on a common substrate or of parts thereof; Manufacture of integrated circuit devices or of parts thereof (multistep manufacturing processes of assemblies consisting of a plurality of individual semiconductor or other solid state devices H01L 25/00, manufacture of assemblies consisting or preformed electrical components H05K 3/00, H05K 13/00)
U  H01L 21/71 - - - - - - Manufacture of specific parts of devices defined in group H01L 21/70 (H01L 21/0405, H01L 21/0445), H01L 21/28, H01L 21/44, H01L 21/48 take precedence)
U  H01L 21/76 - - - - - - Making of isolation regions between components
H01L 21/763 - - - - - - - - Polycrystalline semiconductor regions {(H01L 21/76264 takes precedence)}
H01L 21/764 - - - - - - - - Air gaps {(H01L 21/76264 takes precedence)}
Applying interconnections to be used for carrying current between separate components within a device (comprising conductors and dielectrics)

NOTE
Groups H01L 21/768 to H01L 21/76898 cover multi-step processes for manufacturing interconnections. Information peculiar to single-step processes should also be classified in the corresponding group, e.g.
- cleaning H01L 21/02041
- etching H01L 21/311 , H01L 21/3213
- masking H01L 21/027 , H01L 21/033 , H01L 21/31144 , H01L 21/32139
- planarizing H01L 21/3105 , H01L 21/321

U H01L 21/76801 {characterised by the formation and the after-treatment of the dielectrics, e.g. smoothing}

U H01L 21/76822 {Modification of the material of dielectric layers, e.g. grading, after-treatment to improve the stability of the layers, to increase their density etc.}

WARNING
Groups H01L 21/76822 - H01L 21/76837 are not complete; see provisionally H01L 21/76801

H01L 21/76825 {by exposing the layer to particle radiation, e.g. ion implantation, irradiation with UV light or electrons etc. (plasma treatment H01L 21/76826)}

U H01L 23/00 Details of semiconductor or other solid state devices (H01L 25/00 takes precedence; { structural arrangements for testing or measuring during manufacture or treatment, or for reliability measurements H01L 22/00 ; arrangements for connecting or disconnecting semiconductor or solid-state bodies, or methods related thereto H01L 24/00 ; finger print sensors G06K 9/00006})

NOTE
This group does not cover:
• details of semiconductor bodies or of electrodes of devices provided for in group H01L 29/00 , which details are covered by that group;
• details peculiar to devices provided for in a single main group of groups H01L 31/00 to H01L 51/00 , which details are covered by those groups.

U H01L 23/02 Containers; Seals (H01L 23/12 , H01L 23/34 , H01L 23/48 , H01L 23/552 , (H01L 23/66)take precedence;{ for memories G11C})

U H01L 23/04 characterised by the shape (of the container or parts, e.g. caps, walls)

U H01L 23/053 the container being a hollow construction and having an insulating {or insulated}base as a mounting for the semiconductor body

H01L 23/055 the leads having a passage through the base {(H01L 23/057 takes precedence)}

U H01L 23/12 Mountings, e.g. non-detachable insulating substrates

H01L 23/14 characterised by the material or its electrical properties {(printed circuit boards H05K 1/00)}

H01L 23/15 Ceramic or glass substrates {(H01L 23/142 , H01L 23/145 , H01L 23/147 take precedence)}

U H01L 23/16 Fillings or auxiliary members in containers (or encapsulations), e.g. centering rings (H01L 23/42 , H01L 23/552 take precedence)
Fillings characterised by the material, its physical or chemical properties, or its arrangement within the complete device

NOTE
Group H01L 23/26 takes precedence over groups H01L 23/20 to H01L 23/24

Solid or gel at the normal operating temperature of the device (H01L 23/135 takes precedence)

Arrangements for cooling, heating, ventilating or temperature compensation; {Temperature sensing arrangements (thermal treatment apparatus H01L 21/00)}

Selection of materials, or shaping, to facilitate cooling or heating, e.g. heatsinks (H01L 23/28, H01L 23/40, H01L 23/42, H01L 23/44, H01L 23/46 take precedence; heating H01L 23/345)

Cooling facilitated by shape of device (H01L 23/38, H01L 23/40, H01L 23/42, H01L 23/44, H01L 23/46 take precedence)

Mountings or securing means for detachable cooling or heating arrangements (heating H01L 23/345; fixed by friction, plugs or springs)

Fillings or auxiliary members in containers (or encapsulations) selected or arranged to facilitate heating or cooling (heating H01L 23/345; characterised by selection of materials for the device H01L 23/373)

Cooling by change of state, e.g. use of heat pipes (by liquefied gas H01L 23/445)

the complete device being wholly immersed in a fluid other than air (H01L 23/427 takes precedence)

involving the transfer of heat by flowing fluids (H01L 23/42, H01L 23/44 take precedence)

by flowing gases, e.g. air (H01L 23/473 takes precedence)

by flowing liquids (H01L 23/4332, H01L 23/4338 take precedence)

Arrangements for conducting electric current to or from the solid state body in operation, e.g. leads, terminal arrangements (in general H01R); {Selection of materials therefor}

NOTE
Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by H01L 24/00

consisting of lead-in layers inseparably applied to the semiconductor body (electrodes H01L 29/40)

WARNING
The documents of this group dealing with arrangements for connecting semiconductor or other solid state bodies are being continuously reclassified to H01L 24/01 and subgroups

consisting of layered constructions comprising conductive layers and insulating layers, e.g. planar contacts (H01L 23/4821, H01L 23/4822, H01L 23/4824, H01L 23/4825 take precedence; materials H01L 23/532, bond pads H01L 24/02, bump connectors H01L 24/10)

WARNING
The documents of this group dealing with arrangements for connecting semiconductor or other solid state bodies are being continuously reclassified to H01L 24/01 and subgroups
H01L 23/488 · · consisting of soldered (or bonded) constructions {(bump connectors H01L 24/01)}

U H01L 23/52 · · Arrangements for conducting electric current within the device in operation from one component to another, (i.e. interconnections, e.g. wires, lead frames (optical interconnections G02B 6/00))

U H01L 23/522 · · including external interconnections consisting of a multilayer structure of conductive and insulating layers inseparably formed on the semiconductor body

H01L 23/528 · · · (Geometry or) layout of the interconnection structure {(H01L 27/0207 takes precedence; algorithms G06F 17/50)}

H01L 23/535 · · · including internal interconnections, e.g. cross-under constructions {(internal lead connections H01L 23/481)}

U H01L 24/00 (Arrangements for connecting or disconnecting semiconductor or solid-state bodies; Methods or apparatus related thereto)

NOTES

1. This group does not cover: - details of semiconductor bodies or of electrodes of devices provided for in group H01L 29/00, which details are covered by that group; - details peculiar to devices provided for in a single main group of groups H01L 31/00 to H01L 51/00, which details are covered by those groups. - printed circuits, which are covered by groups H05K 1/00 to H05K 1/189; - apparatus or manufacturing processes for printed circuits, which are covered by groups H05K 3/00 to H05K 3/4685; - manufacture or treatment of parts, which are covered by group H01L 21/48 and subgroups except H01L 21/4885 to H01L 21/4896; - assemblies of semiconductor devices, which are covered by groups H01L 21/50 to H01L 21/568; - applying interconnections to be used for carrying current between separate components within a device, which is covered by group H01L 21/768 and subgroups; - containers or seals, which are covered by groups H01L 23/02 to H01L 23/10; - mountings, which are covered by groups H01L 23/12 to H01L 23/15 and subgroups; - arrangements for cooling, heating, ventilating or temperature compensation, which are covered by groups H01L 23/34 to H01L 23/4735; - arrangements for conducting electric current, which are covered by groups H01L 23/48 to H01L 23/50, and by groups H01L 23/52 to H01L 23/5389; - structural electrical arrangements, which are covered by groups H01L 23/58 to H01L 23/66; - assemblies of semiconductor or other solid state devices, which are covered by groups H01L 25/00 to H01L 25/18.

2. In this group the following indexing codes are used: H01L 24/00 H01L 2224/00, H01L 2924/00, and subgroups thereof!

WARNING

H01L 21/4885, H01L 21/58, H01L 23/48, H01L 23/482, H01L 23/485, H01L 23/488

U H01L 24/80 · · (Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected)

WARNING

1. Pending reorganisation see provisionally also H01L 21/60. 2. Subgroups of this group are not complete; see also this group and the other subgroups

H01L 24/82 · · · (by forming build-up interconnects at chip-level, e.g. for high density interconnects [HDI] (interconnection structure between a plurality of semiconductor chips H01L 23/5389))
Assemblies consisting of a plurality of individual semiconductor or other solid state devices; multistep manufacturing processes thereof; lead frames with assemblies of semiconductor devices thereof; assembling semiconductor devices using processes or apparatus not provided for in a single one of the subgroups H01L 21/06 to H01L 21/326, e.g. sealing of a cap to a base of a container, H01L 21/50; devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00; photovoltaic modules or arrays of photovoltaic cells H01L 31/042, H01G 9/20)

H01L 25/25

- the devices being of types provided for in two or more different main groups of H01L 27/00 to H01L 49/00 and H01L 51/00, e.g. forming hybrid circuits (interconnections for hybrid circuits H01L 23/5389)

Devices consisting of a plurality of semiconductor or other solid state components formed in or on a common substrate (processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof H01L 21/70, H01L 31/00 to H01L 51/00; details thereof H01L 23/00, H01L 29/00 to H01L 51/00; assemblies consisting of a plurality of individual solid state devices H01L 25/00; assemblies of electrical components in general H05K)

NOTE
In this group, in the absence of an indication to the contrary, classification is made in the last appropriate place.

- comprising only passive thin-film or thick-film elements formed on a common insulating substrate (passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes thereof H01L 28/00)

NOTE
In groups H01L 27/01 to H01L 27/26, in the absence of an indication to the contrary, classification is made in the last appropriate place.

- including semiconductor components specially adapted for rectifying, oscillating, amplifying or switching and having at least one potential-jump barrier or surface barrier; including integrated passive circuit elements with at least one potential-jump barrier or surface barrier

- the substrate being other than a semiconductor body, e.g. an insulating body

- combined with thin-film or thick-film passive components (passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes thereof H01L 28/00)

- including semiconductor components sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation (radiation-sensitive components structurally associated with one or more electric light sources only H01L 31/14; couplings of light guides with optoelectronic elements G02B 6/42)

- Devices controlled by radiation

- Imager structures

- Charge coupled imagers (individual charge coupled devices H01L 29/785)

- including semiconductor components with at least one potential-jump barrier or surface barrier specially adapted for light emission (monolithically integrated components including semiconductor laser components H01S 5/026)
including components using organic materials as the active part, or using a combination of organic materials with other materials as the active part.

with components specially adapted for sensing infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation; with components specially adapted for either the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation (combination of organic light sensitive components with organic light emitting components, e.g. optocoupler H01L 27/288)

with components specially adapted for light emission, e.g. flat-panel displays using organic light-emitting diodes (OLED) (combination of organic light sensitive components with organic light emitting components, e.g. optocoupler H01L 27/288)

Semiconductor devices adapted for rectifying, amplifying, oscillating or switching, or capacitors or resistors with at least one potential-jump barrier or surface barrier, e.g. PN junction depletion layer or carrier concentration layer; Details of semiconductor bodies or of electrodes thereof; (Multistep manufacturing processes therefor) (H01L 31/00, H01L 47/00, H01L 51/05 take precedence; processes or apparatur adapted for the manufacture or treatment thereof or of parts thereof H01L 21/00; details other than of semiconductor bodies or of electrodes thereof H01L 23/00; devices consisting of a plurality of solid state components formed in or on a common substrate H01L 27/00; (passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor H01L 28/00; ) resistors in general H01C; capacitors in general H01G, (e.g. ceramic barrier-layer capacitors H01G 4/1272))

NOTE
In this main group, classification is made both in groups H01L 29/02 to H01L 29/51 and in groups H01L 29/66 to H01L 29/94 if both of these sets of groups are relevant.

Semiconductor bodies; (Multistep manufacturing processes therefor)

characterised by their shape; characterised by the shapes, relative sizes, or dispositions of the semiconductor regions; (characterised by the concentration or distribution of impurities within semiconductor regions)

(characterised by particular constructional design considerations, e.g. for preventing surface leakage, for controlling electric field concentration or for internal isolations regions (isolation regions between components H01L 21/76; design considerations for integrated circuits H01L 27/00; geometrical design considerations for devices H01L 29/0657))

(for preventing surface leakage or controlling electric field concentration)

(for increasing or controlling the breakdown voltage of reverse biased devices (H01L 29/0661 takes precedence))

(by the doping profile or the shape or the arrangement of the PN junction, or with supplementary regions, e.g. junction termination extension (JTE) (LDD or drain offset regions H01L 29/7833))

characterised by the materials of which they are formed

including, apart from doping materials or other impurities, only elements of the fourth group of the Periodic System in uncombined form (including SiC H01L 29/24))

further characterised by the doping material (H01L 29/1604 takes precedence)

including, apart from doping materials or other impurities, only AlIBV compounds
further characterised by the doping material (H01L 29/2006 takes precedence)

including, apart from doping materials or other impurities, only AlIBVI compounds

further characterised by the doping material (H01L 29/2206 takes precedence)

Electrodes; (Multistep manufacturing processes therefor)

characterised by the materials of which they are formed

Schottky barrier electrodes (H01L 29/435 takes precedence)

Metal-insulator-semiconductor electrodes, (e.g. gates of MOSFET (H01L 29/435 takes precedence))

NOTE
This group covers also devices using any other conductor material in place of metal

Insulating materials associated therewith (for MIS structures on thin film semiconductor H01L 29/4908)

Types of semiconductor device; (Multistep manufacturing processes therefor)

(Multistep manufacturing processes)

of devices having semiconductor bodies comprising group 14 or group 13/15 materials (comprising semiconducting carbon H01L 29/66015; comprising crystalline silicon carbide H01L 29/66053)

the devices being controllable only by the electric current supplied or the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched, e.g. three-terminal devices

Bipolar junction transistors [BJT]

(Heterojunction transistors [HBT] (with an active layer made of a group 13/15 material H01L 29/66318))

Unipolar field-effect transistors

(Static induction transistors [SIT] (with an active layer made of a group 13/15 material H01L 29/66454))

controllable by only the electric current supplied, or only the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched

Bipolar devices

Transistor-type devices, i.e. able to continuously respond to applied control signals

controlled by field-effect, (e.g. bipolar static induction transistors (BSIT) (unijunction transistors H01L 29/705))

Thyristor-type devices, e.g. having four-zone regenerative action ((two-terminal thyristors H01L 29/87))

Unipolar devices, (e.g. field effect transistors)

Charge transfer devices

Charge-coupled devices (peripheral circuits for CCD storage devices G11C 19/285)

with two-dimensional charge carrier gas channel, e.g. HEMT; (with two-dimensional charge-carrier layer formed at a heterojunction interface (H01L 29/803 takes precedence))

with field effect produced by an insulated gate ((H01L 29/7725, H01L 29/775, H01L 29/778 take precedence))
H01L 29/788 · · · · · · with floating gate { (H01L 29/78391 takes precedence)}
U H01L 29/80 · · · · · · with field effect produced by a PN or other rectifying junction gate, {i.e. potential-jump barrier}
H01L 29/812 · · · · · · with a Schottky gate { (H01L 29/7725 , H01L 29/775 , H01L 29/778 , H01L 29/806 take precedence; with Schottky contact on top of heterojunction gate H01L 29/802)}

H01L 31/00 Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation and adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof; Details thereof (H01L 51/42 takes precedence; devices consisting of a plurality of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, H01L 27/00; production of heat using solar heat F24J 2/00; measurement of X-radiation, gamma radiation, corpuscular radiation or cosmic radiation with semiconductor detectors G01T 1/24, with resistance detectors G01T 1/26; measurement of neutron radiation with semiconductor detectors G01T 3/08; couplings of light guides with optoelectronic elements G02B 6/42; obtaining energy from radioactive sources G21H)}

H01L 31/0248 · · · · · · characterised by their semiconductor bodies
U H01L 31/0256 · · · · · · characterised by the material
U H01L 31/0264 · · · · · · Inorganic materials
U H01L 31/028 · · · · · · including, apart from doping material or other impurities, only elements of the fourth group of the Periodic System
H01L 31/0284 · · · · · · { comprising porous silicon as part of the active layer(s) (porous silicon as antireflective layer for photodiodes H01L 31/0216; for solar cells H01L 31/02168)}

H01L 51/00 Solid state devices using organic materials as the active part, or using a combination of organic materials with other materials as the active part; Processes or apparatus specially adapted for the manufacture or treatment of such devices, or of parts thereof (devices consisting of a plurality of components formed in or on a common substrate H01L 27/28; thermoelectric devices using organic material H01L 35/00, H01L 37/00; piezoelectric, electrostrictive or magnetostrictive elements using organic material H01L 41/00)
H01L 51/50 · · · · · · specially adapted for light emission, e.g. organic light emitting diodes [OLED] or polymer light emitting devices (PLED); {organic semiconductor lasers H01S 5/36; {circuits arrangements for OLED or PLED H05B 33/0896; control arrangements for organic electroluminescent displays G09G 3/3208}}

H01L 2225/00 Details relating to assemblies covered by the group H01L 25/00 but not provided for in its subgroups
U H01L 2225/03 · · · · · · All the devices being of a type provided for in the same subgroup of groups H01L 27/00 to H01L 51/00
U H01L 2225/04 · · · · · · the devices not having separate containers
U H01L 2225/065 · · · · · · the devices being of a type provided for in group H01L 27/00
U H01L 2225/06503 · · · · · · Stacked arrangements of devices
H01L 2225/06541 · · · · · · Conductive via connections through the device, e.g. vertical interconnects, through silicon via [TSV] (manufacturing via connections per se H01L 21/76898)
Project: N/A (H01M)

U H01M 2/00 Constructional details or processes of manufacture of the non-active parts

U H01M 2/20
H01M 2/34 • Current conducting connections for cells
  • with provision for preventing undesired use or discharge, { e.g. complete cut of current (safety devices H01M 2200/00)}

Project: N/A (H01P)

U H01P 1/00 Auxiliary devices (coupling devices of the waveguide type H01P 5/00)
H01P 1/30 • for compensation of, or protection against, temperature or moisture effects; {for improving power handling capability (H01P 1/04, H01P 1/08 take precedence)}

Project: N/A (H01Q)

U H01Q 1/00 Details of, or arrangements associated with, aerials (arrangements for varying orientation of directional pattern H01Q 3/00)

NOTES
1. This group covers only:
   • structural details or features of aerials not dependent on electric operation;
   • structural details or features applicable to more than one type of aerial or aerial element.
2. Structural details or features described with reference to, or clearly applicable only to, aerials or aerial elements of a particular type are classified in the group appropriate to that type.

U H01Q 1/12 • Supports; Mounting means {{for the purpose of scanning H01Q 3/00 ; mounting structure for reflecting surfaces H01Q 15/14 ; Towers, masts, or poles E04H 12/00} ; supporting conductors in general H02G 7/00}
H01Q 1/18 • Means for stabilising aerials on an unstable platform;{(reducing wind-induced forces H01Q 1/005)}
H01Q 1/22 • by structural association with other equipment or articles {{portable transceivers H04B 1/3827}}
H01Q 1/2291 • · · {used in bluetooth or WI-FI devices of Wireless Local Area Networks (WLAN) (H01Q 1/241 takes precedence; WLAN in general H04W)}
U H01Q 1/44 • using equipment having another main function to serve additionally as an aerial;{(Means for giving an aerial anaesthetic aspect)(H01Q 1/28 to H01Q 1/34 take precedence)}
H01Q 1/46 • Electric supply lines or communication lines {circuits for signal transmission via power distribution lines H04B 3/56}  
H01Q 1/52 • Means for reducing coupling between aerials; Means for reducing coupling between an aerial and another structure {{absorbing means H01Q 17/00)}

H01Q 3/00 Arrangements for changing or varying the orientation or the shape of the directional pattern of the waves radiated from an aerial or aerial system {{means for positioning H01Q 1/125}}

H01Q 3/12 • using mechanical relative movement between primary active elements and secondary devices of aerials or aerial systems {{positioning H01Q 1/1264}}
U H01Q 3/26 • varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture {{H01Q 3/12} , H01Q 3/22 , H01Q 3/24 take precedence; { use of steered beams for mobile service area coverage H04Q7/3615}}
U H01Q 3/30 • · varying the {relative}phase {between the radiating elements of an array (H01Q 3/2605 , H01Q 3/2658 , H01Q 3/2682 , H01Q 3/44 take precedence)}
U H01Q 3/34 • · · by electrical means (active lenses or reflecting arrays H01Q 3/46)
H01Q 3/36 · · · with variable phase-shifters \{(combined with time delay devices H01Q 3/2682)\}

H01Q 3/42 · · · using frequency-mixing \{(H01Q 3/2676 takes precedence)\}

H01Q 13/00 Waveguide horns or mouths; Slot aerials; Leaky-waveguide aerials; Equivalent structures causing radiation along the transmission path of a guided wave \{(multimode aerials H01Q 25/04)\}

H01Q 13/20 · Non-resonant leaky-waveguide or transmission-line aerials; Equivalent structures causing radiation along the transmission path of a guided wave \{(varying the phase velocity H01Q 3/443 ; near-field transmission systems using leaky cable H04B 5/0018)\}

H01Q 13/22 · · Longitudinal slot in boundary wall of waveguide or transmission line \{(H01Q 13/203 takes precedence)\}

U H01Q 15/00 Devices for reflection, refraction, diffraction, or polarisation of waves radiated from an aerial, e.g. quasi-optical devices \{variable for purpose of altering directivity H01Q 3/00 ; arrangements of such devices for guiding waves H01P 3/20 ; variable for purpose of modulation H03C 7/02\}

U H01Q 15/02 · Refracting or diffracting devices, e.g. lens, prism

H01Q 15/12 · functioning also as polarisation filter \{(polarisation converters H01Q 15/242)\}

H01Q 15/14 · Reflecting surfaces; Equivalent structures \{(electromagnetic shields H01Q 1/526 ; radar-reflecting targets in general F41J 2/00)\}

H01Q 15/18 · comprising plurality of mutually inclined plane surfaces, e.g. corner reflector \{(H01Q 15/16 takes precedence)\}

H01Q 15/22 · · functioning also as polarisation filter \{(in combination with polarising devices H01Q 15/24)\}

H01Q 17/00 Devices for absorbing waves radiated from an aerial; Combinations of such devices with active aerial elements or systems \{(anechoic chambers G01R 29/105)\}

H01Q 19/00 Combinations of primary active aerial elements and units with secondary devices, e.g. with quasi-optical devices, for giving the aerial a desired directional characteristic \{(combination of horns with slotted waveguide array H01Q 13/0233)\}

H01Q 19/02 · Details \{(fastening of an element on a boom H01Q 1/1228)\}

H01Q 19/06 · using refracting or diffracting devices, e.g. lens \{(radome H01Q 1/42)\}

H01Q 19/08 · · for modifying the radiation pattern of a radiating horn in which it is located \{(corrugated horns H01Q 13/0208 ; producing a circular polarisation H01Q 13/0241)\}

U H01Q 21/00 Aerial arrays or systems \{producing a beam the orientation or the shape of the directional pattern of which can be changed or varied H01Q 3/00; combination of imbricated aerials or arrays operating on different wavebands H01Q 5/40;} electrically-long aerials \{H01Q 11/00\}

NOTE
This group includes:
• arrays comprising two or more individually energised similar active aerial units spaced apart;
• combinations of different types of active aerials or arrays;
• combinations of substantially independant non-interacting active aerials or arrays.

U H01Q 21/06 · Arrays of individually energised active aerial units similarly polarised and spaced apart
H01Q 21/061 · · (Two dimensional planar arrays)
H01Q 21/062 · · · (using dipole aerials; (H01Q 21/067, H01Q 21/068 take precedence))
H01Q 21/068 · · · the units being spaced along or adjacent to a rectilinear path ((waveguide fed H01Q 21/0037))
H01Q 21/067 · · · the units being spaced along or adjacent to a curvilinear path (slotted waveguide arrays H01Q 21/005; circularly or helically slotted waveguides H01Q 21/0062)
H01Q 21/20 · · · Combinations of aerial elements or aerial units polarised in different directions for transmitting or receiving circularly and elliptically polarised waves or waves linearly polarised in any direction (circularly polarised patch antennas H01Q 9/0428; circularly polarised horns H01Q 13/0241; cross-polarised horns H01Q 13/0258; polarisation converters H01Q 15/242; cross-polarised rear feeds H01Q 19/136; crossed polarisation dual antenna H01Q 25/001))
H01Q 21/28 · · · Combinations of substantially independent non-interacting aerial units or systems (multiple beam H01Q 25/00)

H01Q 25/00 · Aerials or aerial systems providing at least two radiating patterns (arrangements for changing or varying the orientation or the shape of the directional pattern H01Q 3/00)
H01Q 25/04 · · Multimode aerials (corrugated horns H01Q 13/0208)

Project: N/A (H01R)

H01R 13/00 · Details of coupling devices of the kinds covered by groups H01R 12/70 or H01R 24/00-H01R 33/00 (electro-optical connectors G02B 6/24)
H01R 13/58 · · Means for relieving strain on wire connection, e.g. cord grip, (for avoiding loosening of connections between wires and terminals within a coupling device terminating a cable (for flat or ribbon cables H01R 12/771; for distribution boxes H02G 3/0616))
H01R 13/62 · · Means for facilitating engagement or disengagement of coupling parts or for holding them in engagement
H01R 13/629 · · Additional means for facilitating engagement or disengagement of coupling parts, e.g. aligning or guiding means, levers, gas pressure (electrical locking indicators, manufacturing tolerances (separate tools or apparatus H01R 43/26))

H01R 23/00 · Two-part coupling devices having four or more poles, with or without additional protective earth connection; Separate parts thereof
WARNING
This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to H01R 24/00 and its subgroups. See also H01R107/00 as part of the indexing scheme associated with group H01R 24/00 and its subgroups, relating to the number of poles in a two-part coupling device.

H01R 23/68 · · · for connection to or between printed circuits; (Non printed connecting arrangements of printed circuit boards (PCB’s) H01R 23/668 takes precedence)}
WARNING
This group and it subgroups is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and it subgroups is being continuously reclassified to H01R 12/00, H01R 12/70 and their respective subgroups.
**Project: N/A (H01R)**

- **H01R 39/00**  
  Rotary current collectors, distributors, or interrupters (cam-operated switches **H01H 19/00**; structural association with dynamo-electric machine **H02K 13/00**)

- **H01R 39/02**  
  Details (for dynamo electric machines (for current collectors not particularly for dynamo electric machines **H01R 39/60, H01R 39/64**))

**Project: N/A (H01S)**

- **H01S 1/00**  
  Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of electromagnetic waves of wavelength longer than that of infra-red waves

  - **H01S 1/06**  
    - gaseous, i.e. beam masers (atomic clocks **G04F 5/14**; circuits using beam masers as a reference frequency for regulating frequency of oscillators **H03L 7/26**; molecular or atomic beam generation **H05H 3/02**)

- **H01S 3/00**  
  Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of infra-red, visible, or ultra-violet waves (stimulated Brillouin or Raman effects **H01S 3/30**; semiconductor lasers **H01S 5/00**)

  - **H01S 3/02**  
    - Constructional details (housings or packages of fibre lasers **H01S 3/06704**)

  - **H01S 3/03**  
    - of gas laser discharge tubes (gas discharge tubes in general **H01J 17/00, H01J 61/00**)

  - **H01S 3/04**  
    - Cooling arrangements

  - **H01S 3/041**  
    - for gas lasers (**H01S 3/0401** takes precedence)

  - **H01S 3/042**  
    - for solid state lasers (**H01S 3/0401** takes precedence)

- **H01S 3/05**  
  Construction or shape of optical resonators; Accomodation of active medium therein; Shape of active medium

  - **H01S 3/06**  
    - Construction or shape of active medium

  - **H01S 3/063**  
    - Waveguide lasers, i.e. whereby the dimensions of the waveguide are of the order of the light wavelength (waveguide gas lasers **H01S 3/0315**)

  - **H01S 3/067**  
    - Fibre lasers (optical pumping thereof **H01S 3/094003**; controlling the output parameters **H01S 3/10**; stabilisation of the output parameters **H01S 3/13**; characterised by scattering effects, i.e. stimulated Brillouin or Raman effects, **H01S 3/302**)

- **H01S 3/06708**  
  (Constructional details of the fibre, e.g. compositions, cross-section, shape or tapering (optical fibres as passive waveguides **G02B 6/02**)

  - **H01S 3/06716**  
    - (Fibre compositions (per se **C03C 13/04**); or doping with active elements (lasing materials in general **H01S 3/14**)

- **H01S 3/08**  
  Construction or shape of optical resonators or components thereof (waveguide lasers **H01S 3/063**; controlling the laser output **H01S 3/10**; stabilising **H01S 3/13**)

  - **H01S 3/081**  
    - comprising more than two reflectors (folded-path gas lasers **H01S 3/076**)

  - **H01S 3/082**  
    - defining a plurality of resonators, e.g. for mode selection (single longitudinal mode control **H01S 3/08022**)

- **H01S 3/09**  
  Processes or apparatus for excitation, e.g. pumping

  - **H01S 3/095**  
    - using chemical or thermal pumping (generating plasma, e.g. by combustion **H02K 44/00, H05H 1/24**)

  - **H01S 3/0955**  
    - using pumping by high energy particles (**H01S 3/0903, H01S 3/0906, H01S 3/09707** take precedence)

- **H01S 3/097**  
  by gas discharge of a gas laser

  - **H01S 3/0977**  
    - having auxiliary ionisation means (**H01S 3/09713** takes precedence)
Controlling the intensity, frequency, phase, polarisation or direction of the emitted radiation, e.g. switching, gating, modulating or demodulating (mode locking \((\text{H01S 3/110})\); controlling of light beams, frequency-changing, non-linear optics, optical logic elements, in general \(\text{G02F}\)).

**NOTE**

Group \(\text{H01S 3/1007}\) takes precedence over groups \(\text{H01S 3/102}\) to \(\text{H01S 3/104}\).

by controlling a device placed within the cavity (\((\text{H01S 3/10076}, \text{H01S 3/13}\) take precedence)

using an electro-optical device, e.g. exhibiting Pockels- or Kerr-effect (\((\text{H01S 3/1061}, \text{H01S 3/1063}, \text{H01S 3/1065}\) take precedence))

using a non-linear optical device, e.g. exhibiting Brillouin- or Raman-scattering (\((\text{mode locking using a non-linear element H01S 3/1112})\)

characterised by the material used as the active medium

Solid materials

amorphous, e.g. glass (\((\text{glass manufacture, shaping or supplementary processes C03B}; \text{compositions for laserable glass C03C 4/0071})\))

**H01S 5/00**

Semiconductor lasers (\((\text{superluminescent diodes H01L 33/0045})\))

Structural details or components not essential to laser action

(Crystals, e.g. growth, shape, material, removal or bonding; (specific crystal orientation \(\text{H01S 5/3202})\))

Cooling arrangements (\((\text{cooling solid state junction devices H01L 23/34}; \text{Heating arrangements; H01S 5/0261}\) takes precedence))

Processes or apparatus for excitation, e.g. pumping, (e.g. by electron beams \((\text{H01S 5/06}\) takes precedence)

Electrical excitation; \(\{\text{Circuits therefor (discrete or monolithically integrated laser drive components on mountings H01S 5/0261)}\}\)

Construction or shape of the optical resonator, (e.g. extended or external cavity, coupled cavities, bent-guide, varying width, thickness or composition of the active region \((\text{H01S 5/20}\) takes precedence))

the resonator having a periodic structure, e.g. in distributed feed-back lasers (DFB-lasers) \((\text{H01S 5/18}\) takes precedence)\((\text{forward coupled structures, i.e. DFC lasers, H01S 5/1028})\)

External cavity lasers (\((\text{external cavity elements, their control or stabilisation H01S 3/08, H01S 3/10 and H01S 3/13})\))

**NOTE**

in this group external cavity elements correspond to elements inside the laser cavity but outside the monolithic semiconductor body. These elements correspond to intra cavity elements in \(\text{H01S 3/00}\)

Structure or shape of the semiconductor body to guide the optical wave; \(\{\text{Confining structures perpendicular to the optical axis, e.g. index- or gain-guiding, stripe geometry, broad area lasers, gain tailoring, transverse or lateral reflectors, special cladding structures, MQW barrier reflection layers}\}\)

having a ridge or stripe structure

Buried stripe structure \((\text{H01S 5/27\) takes precedence})\)

Structure or shape of the active region; Materials used for the active region
H01S 5/34  · · comprising quantum well or superlattice structures, e.g. single quantum well lasers (SQW lasers), multiple quantum well lasers (MQW lasers), graded index separate confinement heterostructure lasers (GRINSCH lasers) (H01S 5/36 takes precedence)

Project: N/A (H02G)
U  H02G 1/00  Methods or apparatus specially adapted for installing, maintaining, repairing or dismantling electric cables or lines
U  H02G 1/06  · for laying cables, e.g. laying apparatus on vehicle (combined with trench digging or back-filling machines or dredgers E02F 5/00)
H02G 1/08  · through tubing or conduit, e.g. rod or draw wire for pushing or pulling ((inserting electrical cables into tubes using wallbores E21B 17/206 ; for optical cables G02B 6/4401))
U  H02G 7/00  Overhead installations of electric lines or cables (installations of bus-bars H02G 5/00 ; trolley wires or contact lines for electric railways B60M ; fastening conductors to insulators H01B 17/00 , e.g. H01B 17/06 , H01B 17/16 , H01B 17/22 ; protection against abnormal electric conditions H01H ; hook contacts for temporary connections to overhead lines H01R 11/14)
H02G 7/14  · Arrangements or devices for damping mechanical oscillations of lines, e.g. for reducing production of sound ((damping spacers H02G 7/125))
U  H02G 15/00  Cable fittings
H02G 15/34  · Cable fittings for cryogenic cables ((superconductive cables per se H01B 12/00))

Project: N/A (H02H)
H02H 3/00  Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal electric working condition with or without subsequent reconnection (specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable of line systems H02H 7/00 ; systems for change-over to standby supply H02J 9/00)(integrated protection (for motors H02H 7/0822))

Project: N/A (H02M)
U  H02M 3/00  Conversion of dc power input into dc power output ((converters specially adapted for use in combination with a battery H02J 7/0065))
U  H02M 3/02  · without intermediate conversion into ac
U  H02M 3/04  · by static converters
U  H02M 3/06  · · using resistors or capacitors, e.g. potential divider
H02M 3/07  · · · using capacitors charged and discharged alternately by semiconductor devices with control electrode, { e.g. charge pumps (for substrate bias voltage generators G05F 3/205 ; for static stores G11C 5/145, G11C 16/06 ; charge pumping structures for internal polarisation H01L 27/0222)}

Project: N/A (H03B)
U  H03B 1/00  Details
H03B 1/02  · Structural details of power oscillators, e.g. for heating ((construction of transmitters H04B ; features of generators for heating by electromagnetic fields H05B 6/00))
U H03B 5/00  Generation of oscillations using amplifier with regenerative feedback from output to input (H03B 9/00, H03B 15/00 take precedence)

U H03B 5/08  · with frequency-determining element comprising lumped inductance and capacitance

U H03B 5/12  · · active element in amplifier being semiconductor device (H03B 5/14 takes precedence)

WARNING
Subgroups H03B 5/1203 to H03B 5/1296 are incomplete pending reclassification; see also the other subgroups of H03B 5/12

U H03B 5/1206  · · · (using multiple transistors for amplification)
H03B 5/1209  · · · · (the amplifier having two current paths operating in a differential manner and a current source or degeneration circuit in common to both paths e.g. a long-tailed pair. (H03B 5/1215 takes precedence))

H03B 9/00  Generation of oscillations using transit-time effects {{construction of tube and circuit arrangements not adapted to a particular application H01J; construction of the semiconductor devices H01L}}

H03B 29/00  Generation of noise currents and voltages {{gasfilled discharge tubes with solid cathode specially adapted as noise generators H01J 17/005}}

Project: N/A (H03F)

U H03F 1/00  Details of amplifiers with only discharge tubes, only semiconductor devices or only unspecified devices as amplifying elements

U H03F 1/08  · Modification of amplifiers to reduce detrimental influences of internal impedances of amplifying elements (wide-band amplifiers with inter-stage coupling networks incorporating these impedances H03F 1/42; eliminating transit-time effects in vacuum tubes H01J 21/34)

H03F 1/18  · · by use of distributed coupling {i.e. distributed amplifiers (distributed amplifiers using coupling networks with distributed constants H03F 3/605)}

H03F 1/30  · Modifications of amplifiers to reduce influence of variations of temperature or supply voltage { or other physical parameters (in differential amplifiers H03F 3/45479)}

Project: N/A (H03G)

H03G 1/00  Details of arrangements for controlling amplification {{for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of H03G}}

U H03G 3/00  Gain control in amplifiers or frequency changers (without distortion of the input signal)(gated amplifiers H03F 3/72; peculiar to television receivers H04N)

U H03G 3/20  · Automatic control {{H03G 3/005 takes precedence } ; combined with volume compression or expansion H03G 7/00)

U H03G 3/30  · · in amplifiers having semiconductor devices

U H03G 3/34  · · · · Muting amplifier when no signal is present (or when only weak signals are present, or caused by the presence of noise signals, e.g. squelch systems)
H03G 3/344  · · · · · (Muting responsive to the amount of noise (noise squelch) (H03G 3/345 takes precedence))

H03G 7/00  Volume compression or expansion in amplifiers {{frequency dependent H03G 9/00}}
Multiple-port networks comprising only passive electrical elements as network components (receiver input circuits H04B 1/18; networks simulating a length of communication cable H04B 3/40)

Time-delay networks (analogue shift registers G11C 27/04)

Networks comprising electromechanical or electro-acoustic devices; Electromechanical resonators (making single crystals C30B; selection of materials thereof H01L; piezo-electric, electrostrictive or magnetostrictive devices per se H01L 41/00; electromechanical transducers H04R)

Details

Mounting in enclosures (constructional combinations of enclosure with electromechanical and other electronic elements H03H 9/0538)

Constructional features of resonators using surface acoustic waves (devices for manipulating acoustic surface waves in general G10K 11/36)

Time-delay networks

Using surface acoustic waves (devices for manipulating acoustic surface waves in general G10K 11/36)

Filters (multiple-port electromechanical filters H03H 9/70)

Comprising resonators of piezo-electric or electrostrictive material (H03H 9/64 takes precedence)

Multiple crystal filters

Electric coupling means therefor (H03H 9/0095 takes precedence)

Networks using digital techniques

Frequency selective networks (digital computers for complex mathematical operations G06F 17/10)

Pulse counters comprising counting chains; Frequency dividers comprising counting chains (H03K 29/00 takes precedence)

Using semiconductor devices having only two electrodes, e.g. tunnel diode, multi-layer diode, (e.g. with a negative resistance characteristic unijunction transistors H03K 23/84)

Analogue/digital conversion; Digital/analogue conversion (conversion of analogue values to or from differential modulation H03M 3/00)

Continuously compensating for, or preventing, undesired influence of physical parameters (periodically, e.g. by using stored correction values) (H03M 1/10)

Of noise (H03M 1/0617 takes precedence)

Analogue/digital converters (H03M 1/001 to H03M 1/004 as well as H03M 1/02 to H03M 1/10 take precedence)

Conversion in steps with each step involving the same or a different conversion means and delivering more than one bit

With scale factor modification, i.e. by changing the amplification between the steps (H03M 1/141 takes precedence)

Analogue value compared with reference values (H03M 1/48 takes precedence)
H03M 1/36  · · · simultaneously only, i.e. parallel type {(thermometer to binary encoders
H03M 7/165)}

U H03M 3/00  Conversion of analogue values to or from differential modulation
H03M 3/02  · · · Delta modulation, i.e. one-bit differential modulation {H03M 3/30 takes
precedence}

U H03M 7/00  Conversion of a code where information is represented by a given
sequence or number of digits to a code where the same information (or
similar information or a subset of information) is represented by a different
sequence or number of digits

U H03M 7/14  · · · Conversion to or from non-weighted codes
H03M 7/20  · · · Conversion to or from n-out-of-m codes {number-of-one counters
G06F 7/607}
H03M 7/30  · · · Compression (speech analysis-synthesis for redundancy reduction G10L 19/00
for image communication H04N); Expansion; Suppression of unnecessary
data, e.g. redundancy reduction {{for data acquisition G06F 17/40; for
image data processing G06T 9/00; redundancy reduction in data recording
G11B 20/14; for transmission H04B 1/66}}

U H03M 7/3002  · · · {Conversion to or from differential modulation}
H03M 7/3048  · · · {Conversion to or from one-bit differential modulation only, e.g. delta
modulation [DM] {H03M 7/3004 takes precedence}}

U H03M 7/40  · · · Conversion to or from variable length codes, e.g. Shannon-Fano code,
Huffman code, Morse code
H03M 7/42  · · · · · · using table look-up for the coding or decoding process, e.g. using read-only
memory {H03M 7/4006 takes precedence}

U H03M 13/00  Coding, decoding or code conversion, for error detection or error
 correction; Coding theory basic assumptions; Coding bounds; Error
probability evaluation methods; Channel models; Simulation or testing
of codes (error detection or error correction for analogue/digital, digital/
analogue or code conversion H03M 1/00 to H03M 11/00; specially adapted
for digital computers G06F 11/08, for information storage based on relative
movement between record carrier and transducer G11B, e.g. G11B 20/18
for static stores G11C; (use of error detection or error correction in
transmission systems H04L 1/004, in television systems H04N 7/0357)}

U H03M 13/03  · · · Error detection or forward error correction by redundancy in data
representation, i.e. code words containing more digits than the source words
H03M 13/05  · · · · · · using block codes, i.e. a predetermined number of check bits joined
to a predetermined number of information bits {H03M 13/2906 takes
precedence}
H03M 13/09  · · · · · · Error detection only, e.g. using cyclic redundancy check [CRC] codes
or single parity bit {error detection or correction by redundancy in data
representation G06F 11/08}

WARNING
Not complete, see also G06F11/10B

U H03M 13/11  · · · using multiple parity bits
U H03M 13/1102  · · · {Codes on graphs and decoding on graphs, e.g. low-density parity check
[LDPC] codes}
U H03M 13/1148  · · · · · · {Structural properties of the code parity-check or generator matrix}
H03M 13/1151  · · · · · · · {Algebraically constructed LDPC codes, e.g. LDPC codes derived
from Euclidean geometries [EG-LDPC codes] {H03M 13/116
H03M 13/1174 take precedence}}
H03M 13/25  · Error detection or forward error correction by signal space coding, i.e. adding redundancy in the signal constellation, e.g. Trellis Coded Modulation (TCM) ([modulation codes H03M 13/31])

H03M 13/33 · Synchronisation based on error coding or decoding ([for transmission H04L 7/048])

WARNING
Groups H03M 13/333 - H03M 13/336 are not complete pending reclassification; see also this group

Project: N/A (H04B)

U H04B 1/00 Details of transmission systems, not covered by a single one of groups H04B 3/00 to H04B 13/00; Details of transmission systems not characterised by the medium used for transmission (tuning resonant circuits H03J)

NOTE
In this group, group H04B 1/0003 takes precedence over groups H04B 1/005 to H04B 1/76

U H04B 1/02 · Transmitters (spatial arrangements of component circuits in radio pills for living beings A61B 5/07)
H04B 1/03 · Constructional details, e.g. casings, housings ([adapted for airplanes B64D])
H04B 1/034 · Portable transmitters ([distress beacons G01S 1/68; means for indicating the location of accidentally buried persons A63B 29/021])

U H04B 1/06 · Receivers (control of amplification H03G; television receivers H04N 5/44, H04N 5/64)

U H04B 1/10 · Means associated with receiver for limiting or suppressing noise or interference (induced by transmission (interference reduction in spread spectrum systems H04B 1/7097; equalising on HF or IF H04B 7/005; diversity systems H04B 7/02; elimination of image frequencies H03D 7/18; noise suppression by control of amplification H03G 3/00, H03G 5/00, H03G 7/00; squelching H03G 3/26, H03G 3/34))
H04B 1/12 · Neutralising, balancing, or compensation arrangements ([balancing ripple filters H04B 15/005, H02M 1/143])

H04B 1/16 · Circuits ([demodulators H03D])

U H04B 1/62 · for providing a predistortion of the signal in the transmitter and corresponding correction in the receiver, e.g. for improving the signal/noise ratio ([for optical transmitters H04B 10/58])

H04B 1/64 · Volume compression or expansion arrangements ([for amplifiers H03G 7/00])
H04B 1/74 · for increasing reliability, e.g. using redundant or spare channels or apparatus ([replacing by standby devices for amplifiers H03F 1/52, H03F 1/542])

U H04B 7/00 Radio transmission systems, i.e. using radiation field (H04B 10/00, H04B 15/00 take precedence)

U H04B 7/14 · Relay systems (interrogator-responder radar systems G01S 13/74; [CATV [community antenna television] systems H04N 20/78; adapted for television H04N 7/20])
H04B 7/145 · Passive relay systems ([construction of passive reflectors G01S 13/02])

U H04B 7/15 · Active relay systems

U H04B 7/155 · Ground-based stations (H04B 7/204 takes precedence; for satellite systems H04B 7/18517))
H04B 7/15507  ... (Relay station based processing for cell extension or control of coverage area, (network planning with network coordinated processing with regard to cell extension H04W 16/26; network topologies using dedicated repeater stations H04W 84/047; terminal devices adapted for relaying to or from an other terminal H04W 88/04))

U H04B 7/24  · for communication between two or more posts (for selecting H04W; (wireless communication networks H04W))

U H04B 7/26  · at least one of which is mobile

H04B 7/2621  · · · (using frequency division multiple access [FDMA] (H04B 7/2615 takes precedence))

H04B 7/2628  · · · (using code-division multiple access [CDMA] or spread spectrum multiple access [SSMA] (H04B 7/2618 takes precedence))

H04B 7/2643  · · · (using time-division multiple access [TDMA] (H04B 7/2615, H04B 7/2618 take precedence))

U H04B 10/00  Transmission systems employing electromagnetic waves other than radio-waves, e.g. infrared, visible or ultraviolet light, or employing corpuscular radiation, e.g. quantum communication

NOTE
Groups H04B 10/03, H04B 10/07, H04B 10/11, H04B 10/25, H04B 10/27, H04B 10/29 and H04B 10/40 to H04B 10/90, and their subgroups are based on IPC2013.01

WARNING
Group H04B 10/2572 does not correspond to former or current IPC groups. Concordance CPC:IPC for this group is as follows: - H04B 10/2572: H04B 10/2507

U H04B 10/03  · Arrangements for fault recovery

WARNING
This group and its subgroups are not complete pending reclassification; see also H04B 10/07 and subgroups H04B 10/071 - H04B 10/0799

H04B 10/032  · · using working and protection systems ((H04J 14/0287 takes precedence))

H04B 10/25  · Arrangements specific to fibre transmission ((optical fibres per se, structural details of arrangements comprising optical fibres or other optical elements G02B 6/00))

WARNING
This group and its subgroups are not complete pending reclassification; see also H04B 10/12 and its subgroups

U H04B 10/2507  · · for the reduction or elimination of distortion or dispersion

U H04B 10/2513  · · due to chromatic dispersion

H04B 10/2519  · · · using Bragg gratings ((Bragg gratings per se G02B 6/02076; devices using fibre gratings for dispersion control per se G02B 6/29316))

H04B 10/2525  · · · using dispersion-compensating fibres ((dispersion-tailored or dispersion compensation fibres per se G02B 6/02214))

H04B 10/2543  · · · due to fibre non-linearities, e.g. Kerr effect ((non-linear optical devices G02F 1/35))

H04B 10/2575  · · Radio-over-fibre, e.g. radio frequency signal modulated onto an optical carrier ((sub-carrier multiplexing H04J 14/0298))

H04B 10/2581  · · Multimode transmission ((mode multiplex systems H04J 14/04))
H04B 10/27 · Arrangements for networking {(free-space networks H04B 10/11, WDM networks H04J 14/0278, specific to radio-over-fibre H04B 10/25753)}

U H04B 10/29 · Repeaters
H04B 10/291 · in which processing or amplification is carried out without conversion of the main signal from optical form {(fibre optical amplifiers per se H01S 3/067)}

U H04B 10/2912 · · · {characterised by the medium used for amplification or processing}
H04B 10/2914 · · · · {using lumped semiconductor optical amplifiers [SOA] (semiconductor optical amplifiers per se H01S 5/50)}

U H04B 10/293 · · · Signal power control
H04B 10/294 · · · · in a multiwavelength system, e.g. gain equalisation {(for general power control in WDM systems, see also H04J 14/0221)}
H04B 10/2942 · · · · · {using automatic gain control [AGC] (H04B 10/296 takes precedence)}

Project: N/A (H04H)
U H04H 60/00 Arrangements for broadcast applications with a direct linking to broadcast information or broadcast space-time; Broadcast-related systems
U H04H 60/68 · Systems specially adapted for using specific information, e.g. geographical or meteorological information
H04H 60/72 · · using EPGs [Electronic Programme Guides] (focusing on identifying broadcast space-time H04H 60/39; { menu type display of EPG in television receivers H04N 5/44543})

Project: N/A (H04J)
U H04J 1/00 Frequency-division multiplex systems (H04J 14/00 takes precedence)
U H04J 1/02 · Details
H04J 1/04 · · Frequency-transposition arrangements {(modulation with carrier or side-band suppression H03C 1/52, H03C 1/60; single-band suppression H04B 1/00, H04B 15/00; telegraphic communication H04L 27/02, H04L 25/49; transference of modulation from one carrier to another, e.g. frequency-changing H03D 7/00; demodulation or transference of modulation of modulated electromagnetic waves H03D 9/00)}
H04J 1/06 · · Arrangements for supplying the carrier waves (Arrangements for supplying synchronisation signals (carrier supply H04L 5/10; frequency multiplication H03B 19/00, H03B 21/00; mixing H03D 7/00, H03D 9/00; synchronisation in general H03B))
H04J 1/08 · · Arrangements for combining channels {(branching filters H01P 1/213, H03H 7/46)}
H04J 1/10 · · Intermediate station arrangements, e.g. for branching, for tapping-off {(repeater circuits H04B 3/36, H04B 3/58; two-way amplifiers H03F 3/62)}
H04J 1/12 · · Arrangements for reducing cross-talk between channels {(in line transmission systems H04B 3/32; in cables or lines H04B 3/26 to H04B 3/30)}
H04J 1/16 · · Monitoring arrangements {(for transmission in general H04B 17/00; for amplifiers H03F 1/52, H03F 1/523)}

U H04J 3/00 Time-division multiplex systems (H04J 14/00 takes precedence; relay systems H04B 7/14; selecting techniques H04Q)
U H04J 3/02 · Details (electronic switching or gating H03K 17/00)
H04J 3/04 · · Distributors combined with modulators or demodulators {(pulse distributors in general H03K 5/15; pulse counters H03K 21/00 to H03K 29/06; for telegraphy H04L 5/22, H04L 13/00 to H04L 23/00, H04L 25/45; for telephony H04Q 11/04)}
H04J 3/06  · · Synchronising arrangements {(for television systems H04N 5/04; bit-synchronisation H04L 7/00)}
U H04J 3/0635  · · · · (Clock or time synchronisation in a network (timer in protocols H04L 69/28))
U H04J 3/0638  · · · · (Clock or time synchronisation among nodes; Internode synchronisation (synchronisation for ring networks H04L 12/422; data switching networks with synchronous transmission H04L 12/43))
H04J 3/0652  · · · · · (Synchronisation among time division multiple access [TDMA] nodes, e.g. time triggered protocol [TTP] (bus network with centralized control in which slots are of a TDMA packet structure H04L 12/4035))
H04J 3/14  · · Monitoring arrangements {(for SDH/SONET rings H04J 3/085)}
H04J 3/17  · · in which the transmission channel allotted to a first user may be taken away and re-allotted to a second user if the first user becomes inactive, e.g. TASI {(speech analysis or identification G10L)}
H04J 3/22  · · in which the sources have different rates or codes {(simultaneous speech and digital data or video transmission H04M 11/06; see provisional also H04J 3/16)}
U H04J 11/00  Orthogonal multiplex systems, (e.g. using WALSH codes) (H04J 13/00 takes precedence)
H04J 11/0069  · · (Cell search, i.e. determining cell identity [cell-ID] (design of multiplexing codes H04J 13/00; processing access restriction or access information H04W 48/16; discovery of network devices for network data management H04W 8/005; sounding signals for channel estimation H04L 25/0226; structure of reference signals in multicarrier modulation systems H04L 27/2613; frame, time or carrier synchronisation in multicarrier modulation systems H04L 27/2655))
U H04J 14/00  Optical multiplex systems (optical coupling, mixing or splitting, per se G02B)
U H04J 14/02  · · Wavelength-division multiplex systems
U H04J 14/0227  · · · · (Operation, administration, maintenance or provisioning [OAMP] of WDM network, e.g. media access, routing or wavelength allocation (monitoring of optical transmission parameters in general H04B 10/07))
U H04J 14/0254  · · · · · (Optical medium access)
H04J 14/0267  · · · · · (Optical signalling or routing, (routing in packet switched systems H04L 12/5689))

Project: N/A (H04K)
U H04K 3/00  Jamming of communication; Counter-measures (counter-measures used in radar or analogous systems G01S 7/00; (in radar G01S 7/36, G01S 7/38; in lidar G01S 7/495; in sonar G01S 7/537))

NOTES
1. This group covers: “Jamming”, only when it means purposefully trying to interfere with the physical transmission and reception of communication. Provided this condition is met, this group covers devices and methods for:
   a. jamming of communication:
      i. jamming by intentionally decreasing the signal to noise ratio
      ii. deceptive jamming
      iii. passive jamming
      iv. destructive jamming
   b. countermeasures against jamming
   c. countermeasures against undesired self-jamming resulting from jamming
   d. countermeasures against surveillance, interception or detection
   e. other electronic countermeasures using or against electromagnetic or acoustic waves
f. signal detection techniques used in relation to
   i. jamming: for interception and monitoring of the jamming target signal
   ii. anti-jamming: for jamming detection,
   iii. anti-surveillance: for surveillance detection

2. In this group, the following acronyms are used: GPS = global positioning system
   RCIED = remote controlled improvised explosive device
   RFID = radio frequency identification
   WLAN= wireless local area network

WARNING
Groups H04K 3/00 - H04K 3/94 do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - H04K 3/00 - H04K 3/94 : H04K 3/00

U H04K 3/20 ·  {Countermeasures against jamming (in radar G01S 7/36; interference suppression in receivers H04B 1/10)}

U H04K 3/25 · ·  {based on characteristics of target signal or of transmission (as countermeasure against surveillance H04K 3/827), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques H04B 1/69)}

U H04K 3/80 ·  {Jamming or countermeasure characterized by its function}

U H04K 3/82 · · ·  {related to preventing surveillance, interception or detection}

U H04K 3/827 · · · ·  {using characteristics of target signal or of transmission (as countermeasure against jamming H04K 3/25), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques H04B 1/69)}

Project: N/A (H04L)

U H04L 1/00 Arrangements for detecting or preventing errors in the information received (correcting synchronisation H04L 7/00 ; (for digital computers G06F 11/00) ; arrangements in the transmission path H04B)

H04L 1/08 · by repeating transmission, e.g. Verdan system ((H04L 1/1858 and H04L 1/189 take precedence))

H04L 1/22 · using redundant apparatus to increase reliability ((see G06F 11/08 to G06F 11/20))

U H04L 5/00 Arrangements affording multiple use of the transmission path (multiplex communication in general H04J : (orthogonal multiplex systems H04J 11/00))
Channels characterised by the type of signal

- Channels characterised by the type of signal
- the signals being represented by different frequencies (combined with time-division multiplexing H04L 5/26)
- each combination of signals in different channels being represented by a fixed frequency (e.g. twinplex; see H04L 27/16)
- using different combinations of lines, e.g. phantom working (phantom interconnection between telephone switching centres H04M 7/08; coupling arrangements therefor H04L 25/0272)
- using time-division multiplexing (in general H04J 3/00)

Arrangements for synchronising receiver with transmitter (synchronisation of electronic time-pieces G04G 7/00; synchronisation of generators of electric oscillations or pulses H03L; synchronising in TV system H04N 5/04; regeneration of clock signals for television systems H04N 7/0352)

- Speed or phase control by the received code signals, the signals containing no special synchronisation information (H04L 7/0075 takes precedence; tuning or selecting resonant circuits H03J; using the properties of error detecting or correcting codes H04L 7/048)

- Speed or phase control by synchronisation signals (H04L 7/0075 takes precedence)

Cryptographic mechanisms or cryptographic arrangements for secret or secure communication (network architectures or network communication protocols for network security H04L 63/00 or for wireless network security H04W 12/00; security arrangements for protecting computers or computer systems against unauthorized activity G06F 21/00)

- Key distribution (or management, e.g. generation, sharing or updating, of cryptographic keys or passwords (network architectures or network communication protocols for supporting key management in a packet data network H04L 63/06))
asymmetric key distribution the subgroup H04L 9/08 was promoted to one-dot-level, unlike the corresponding IPC subgroup

U H04L 9/0816  
· · (Key establishment, i.e. cryptographic processes or cryptographic protocols whereby a shared secret becomes available to two or more parties, for subsequent use)

H04L 9/0819  
· · · (Key transport or distribution, i.e. key establishment techniques where one party creates or otherwise obtains a secret value, and securely transfers it to the other(s) (network architectures or network communication protocols for key distribution in a packet data network H04L 63/062))

H04L 9/10  
· with particular housing, physical features or manual controls (not used; see H04L 9/00)

H04L 9/14  
· using a plurality of keys or algorithms (network architectures or network communication protocols wherein the sending and receiving network entities apply hybrid encryption, i.e. combination of symmetric and asymmetric encryption H04L 63/045)

U H04L 9/18  
· Encryption by serially and continuously modifying data stream elements, e.g. stream cipher systems

WARNING  
This subgroup is no longer used for the classification of new documents as from 1.02.2012 and the backlog of this subgroup is being continuously reclassified to H04L 9/065

H04L 9/20  
· · Pseudorandom key sequence combined element-for-element with data sequence (not used; see H04L 9/18)

U H04L 9/22  
· · · with particular pseudorandom sequence generator

WARNING  
This subgroup is no longer used for the classification of new documents as from 1.02.2012 and the backlog of this subgroup is being continuously reclassified to H04L 9/065

H04L 9/24  
· · · · sequence produced by more than one generator (not used; see H04L 9/22)

H04L 9/34  
· Bits, or blocks of bits, of the telegraphic message being interchanged in time (for speech signals H04K 1/06)

U H04L 12/00  
Data switching networks (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units G06F 13/00)

U H04L 12/02  
· Details

H04L 12/14  
· · (Metering,)charging (or billing)arrangements (specially adapted for data wireline or wireless communications (payment schemes, architectures or protocols per se G06Q 20/00))

U H04L 12/16  
· · Arrangements for providing special services to substations (contains provisionally no documents)

H04L 12/18  
· · · for broadcast or conference, e.g. multicast (multicast or broadcast switches H04L 49/201)

U H04L 12/28  
· · characterised by path configuration, e.g. local area networks (LAN), wide area networks (WAN)

U H04L 12/42  
· · Loop networks

H04L 12/437  
· · · Ring fault isolation or reconfiguration (for SDH/SONET ring networks H04J 3/085)

U H04L 12/46  
· · Interconnection of networks
NOTES
1. This group covers:
   • a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location.
2. This group does not cover:
   • group multicasting, which is covered by H04L 12/18
   • configuration of switches supporting VLANs, which is covered by H04L 12/2424
   • multiprotocol label switching [MPLS], which is covered by H04L 12/5689
   • spanning tree protocol [STP], which is covered by H04L 12/462
   • arrangements for network security, which is covered by H04L 29/06612
   • encapsulation techniques, which is covered by H04L 12/4633
   • access arrangements, which is covered by H04L 12/2856
3. In this group the following terms or expressions are used with the meaning indicated:
   • B-Tag means Backbone VLAN Tag
   • C-Tag means Customer VLAN Tag
   • GARP means Generic Attribute Registration Protocol
   • GVRP means GARP VLAN Registration Protocol
   • I-SID means Service Instance Identifier
   • MVRP means Multiple VLAN Registration Protocol
   • PBB means Provider Backbone Bridges
   • S-Tag means Service VLAN Tag
   • VLAN means Virtual Local Area Network
   • VPN means Virtual Private Network
   • VTP means VLAN Trunking Protocol

U H04L 25/00 Baseband systems
H04L 25/02 • Details (circuits in general for handling pulses H03K; in line transmission systems in general H04B 3/02); (Arrangements for supplying electrical power along data transmission lines (systems for transmitting signals via power distribution lines H04B 3/54))
H04L 25/06 • • Dc level restoring means; Bias distortion correction (decision circuits providing symbol by symbol detection (detection of unique words or other known elements H04L 7/00, H04J 3/0602))
H04L 25/10 • • Compensating for variations in line balance {((balancing during the coupling of signals H04L 25/0282))
H04L 25/12 • • Compensating for variations in line impedance {((impedance matching in coupling arrangements H04L 25/0278))
U H04L 25/20 • • Repeater circuits; Relay circuits
H04L 25/24 • • Relay circuits using discharge tubes or semiconductor devices {H04L 25/22 takes precedence})
U H04L 25/38 • Synchronous or start-stop systems, e.g. for Baudot code
U H04L 25/40 • • Transmitting circuits; Receiving circuits (repeater circuits, relay circuits(H04L 25/20))
H04L 25/49  · · · using code conversion at the transmitter; using predistortion; using insertion of idle bits for obtaining a desired frequency spectrum; using three or more amplitude levels; {Baseband coding techniques specific to data transmission systems (spectral shaping H04L 25/03828)}

H04L 25/497  · · · by correlative coding, e.g. partial response coding or echo modulation coding (transmitters and receivers for partial response systems (transversal equalizers H04L 25/03; partial response continuous phase modulation systems H04L 27/18))

H04L 27/00  Modulated-carrier systems {(code shift keying in combination with frequency multiplexing H04L 5/06; simultaneous bidirectional transmission of ac signals H04L 5/143; code shift keying H04L 23/02; polarisation shift keying H04B 14/008; transmission of data during the active part of a television frame H04N 7/025)}

H04L 27/01  · Equalisers {(baseband equalisers H04L 25/03; control of amplification H03G; in analogue transmission systems H04B 3/04, H04B 7/005)}

H04L 27/10  · Frequency-modulated carrier systems, i.e. using frequency-shift keying (H04L 27/32 takes precedence; {continuous phase systems H04L 27/18})

H04L 27/12  · Modulator circuits (in general H03C(H03K 7/06)); Transmitter circuits (continuous phase modulation H04L 27/20)

H04L 27/14  · Modemulator circuits (in general H03D(H03K 9/06)); Receiver circuits (continuous phase modulation H04L 27/22)

U H04L 29/00  Arrangements, apparatus, circuits or systems, not covered by a single one of groups H04L 1/00 to H04L 27/00 (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units G06F 13/00) {contains provisionally no documents}

U H04L 29/02  · Communication control (in satellite networks H04B 7/185); Communication processing (H04L 29/12, H04L 29/14 take precedence) {contains provisionally no documents}

U H04L 29/06  · characterised by a protocol

U H04L 29/06176  · · · (Arrangements for real-time multimedia communications (data switching systems for broadcast or conference H04L 12/18; message switching systems H04L 12/58; television systems H04N 7/00; interconnection arrangements between switching centres for working between exchanges having different types of switching equipment where the types of switching equipment comprise PSTN/ISDN equipment and equipment of networks other than PSTN/ISDN H04M 7/1205; systems providing special services to telephonic subscribers H04M 3/42; network applications in general H04L 29/0808)}

NOTES
1. [N: This group covers:
   • only communications which fulfil the following two conditions:
     1. they are based on packet data;
     2. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network;
   • provided that the above two conditions are met, this group covers arrangements relating to
     1. the transmission of the multimedia data itself,
     2. the user-to-user, user-to-network, inter-network or intra-network signalling supporting:
        a. the establishment of a session for the subsequent transmission of the multimedia data, or
        b. the maintenance of the session or
c. the application services available to the user during the
session (unless explicitly excluded in certain cases).

2. This group does not cover:
   • non-real-time multimedia file transfer, which is covered by
     H04L 29/08117.
   • multimedia store or forward messaging as in e-mail, MMS or the like,
     which is covered by H04L 12/58.
   • analogue multimedia streaming, as in analogue television systems,
     which is covered by H04N 7/00 and H04N 5/00.
   • bit streaming, i.e. not packet-based, as in ISDN which is covered by
     H04Q 11/04.
   • instant messaging, which is covered by H04L 12/581.
   • any other multimodal data communications which do not meet the
     conditions of being packet-based and real-time or pseudo-real-time.

3. In this group the following terms or expressions are used with the
meaning indicated:
   • H.323 means International Telecommunication Union
     Recommendation no. 323, series H, entitled "Packet-based
     multimedia communications systems"
   • IP means Internet Protocol
   • IMS means IP Multimedia Subsystem
   • ISDN means Integrated Services Digital Network
   • MGC means Media Gateway Control/Controller
   • MGCP means Media Gateway Control Protocol
   • MMS means Multimedia Messaging Service
   • PBX means Private Branch Exchange
   • PSTN means Public Switched Telephone Network
   • QoS means Quality of Service
   • RTP means Real Time Protocol
   • RTCP means Real Time Control Protocol
   • SIP means Session Initiation Protocol
   • SPAM means unsolicited electronic mail
   • SPIT means SPAM Prevention in IP Telephony

4. WARNING
   Group H04L 29/06176 or subgroups are not complete pending
   reorganisation. See also H04L 29/06027.
H04L 29/0809 · · · · {involving the use of web-based technology, e.g. Hyper Text Transfer Protocol (HTTP), (information retrieval from the Internet G06F 17/30861)}

H04L 29/08108 · · · · {adapted for terminals or networks with limited resources and for terminal portability, e.g. Wireless Application Protocol [WAP] (services or facilities specially adapted for wireless communication networks H04W 4/00)}

H04L 29/08648 · · · · {Arrangements for service discovery, e.g. Service Location Protocol [SLP] (address allocation to terminals or nodes connected to a network H04L 29/12009)}

U H04L 29/08702 · · · · {involving intermediate processing or storage in the network, e.g. proxy (billing provisions H04L 12/14; network management provisions H04L 12/24; monitoring provisions H04L 12/2602; multimedia network architectures; gateways and control entities H04L 29/0621; multimedia handling; encoding and conversion H04L 29/06476; security provisions H04L 29/06551; addressing provisions H04L 29/12009)}

WARNING
The subgroups H04L 29/08711, H04L 29/08738 to H04L 29/08783, and H04L 29/08801 to H04L 29/08855 are not complete pending reorganisation. See also H04L 29/0872, H04L 29/08792.

H04L 29/0872 · · · · m {Arrangements for brokering (protocols for client-server architecture H04L 29/06047; negotiation of communication capabilities H04L 29/06537; e-commerce G06Q 30/00)}

WARNING
This group is no longer used for the classification of new documents as from December 1, 2009. The backlog of this group is being continuously reclassified to the subgroups H04L 29/08711 to H04L 29/08909.

H04L 29/08981 · · · · {involving the movement of software and/or configuration parameters, e.g. applets, (programme loading or initiating G06F 9/445)}

U H04L 29/12 · · · characterised by the data terminal (contains provisionally no documents)

U H04L 29/12009 · · · {Arrangements for addressing and naming in data networks}

NOTES
1. H04L 61/00 covers aspects of data networks, excluding pure telephone solutions (H04M 7/00) or addressing within a device, e.g. process, memory etc. (G06F 13/42 or G06F 12/00).
2. Aspects relating to switching and routing are classified in H04L 12/56.
3. Main aspects covered by this group are: address resolution; directories and name-to-address resolution; allocation of addresses; conversion of addresses; logical names and non-standard use of addresses.

WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to H04L 61/00.

U H04L 29/12594 · · · {Arrangements for managing names, e.g. use of aliases or nicknames (retrieval from the Internet by using information identifiers, e.g. URLs G06F 17/30876; name-to-address mapping H04L 29/12047)}

WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to H04L 61/30.
U H04L 29/12622  · · · · (Name registration, generation or assignment)

WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to H04L 61/3015

H04L 29/12632  · · · · (Administrative registration, e.g. for domain names at internet
corporation for assigned names and numbers [ICANN] (data processing
for administration G06Q 10/00))

WARNING
This subgroup is no longer used for classification as from 01.05.2012.
The backlog of this subgroup is being continuously reclassified to H04L 61/302

U H04L 41/00  {Arrangements for maintenance or administration or management of packet
switching networks}

WARNING
Groups H04L 41/00 - H04L 41/5096 do not correspond to former or current IPC
groups. Concordance CPC : IPC for these groups is as follows: - H04L 41/00 - H04L 41/5096 : H04L 12/24

U H04L 41/02  · (involving integration or standardization)
H04L 41/024  · · (using relational databases for representation of network management data,
e.g. managing via structured query language [SQL] (information retrieval in
structured data stores G06F 17/30286))
H04L 41/0246  · · (exchanging or transporting network management information using Internet ,
e.g. aspects relating to embedding network management web servers in
network elements, web service for network management purposes, aspects
related to Internet applications or services or web-based protocols, simple
object access protocol [SOAP] (web-based network application protocols
H04L 67/02 ; web-based network application protocols for remote control
of end-devices or monitoring of remote application data H04L 67/025
; proprietary application protocols for remote control of end-devices in
special networking environments H04L 67/125 ; retrieval from the Internet
G06F 17/30861))

U H04L 41/50  · (Network service management, i.e. ensuring proper service fulfillment according
to an agreement or contract between two parties, e.g. between an IT-provider
and a customer)

U H04L 41/5003  · · (Managing service level agreement [SLA] or interaction between SLA and
quality of service [QoS])
H04L 41/5009  · · · · (Determining service level performance, e.g. measuring SLA quality
parameters, determining contract or guarantee violations, response time or
mean time between failure [MTBF] (monitoring performance metrics on a
simple network level H04L 43/08))

U H04L 47/00  {Traffic regulation in packet switching networks (arrangements for
detecting or correcting errors in the information received H04L 1/00)}

NOTE
This group covers:
1. Flow control or congestion control
2. Queue scheduling
3. Admission control or resource allocation

**WARNING**

Groups H04L 47/00 - H04L 47/829 do not correspond to former or current IPC groups.
Concordance CPC : IPC for this groups is as follows:
- H04L 47/00 - H04L 47/829 : H04L 12/56

U H04L 47/10
   · {Flow control or congestion control}
H04L 47/24
   · · {depending on the type of traffic, e.g. priority or quality of service [QoS] (Network arrangements for networked applications for scheduling or organising the servicing of application requests whereby quality of service or priority requirements are taken into account H04L 67/322)}

U H04L 51/00
   {Arrangements for user-to-user messaging in packet-switching networks, e.g. e-mail or instant messages}

**WARNING**

Groups H04L 51/00 - H04L 51/38 do not correspond to former or current IPC groups.
Concordance CPC : IPC for these groups is as follows:
- H04L 51/00 - H04L 51/38 : H04L 12/58

H04L 51/04
   · {Real-time or near real-time messaging, e.g. instant messaging [IM] (network arrangements or protocols for real-time communications H04L 65/00)}

U H04L 61/00
   {Network arrangements or network protocols for addressing or naming}

**NOTE**

This group does not cover:
- Aspects relating to switching or routing which are classified in H04L 12/56.
- Aspects relating to configuration management of data networks or network elements in general which are classified in H04L 12/2424.
- Aspects of addressing in telephony which are classified in H04M 7/00.
- Aspects of addressing within devices, e.g. process or memory, which are classified in G06F 13/42 or G06F 12/00.

**WARNING**

Groups H04L 61/00 - H04L 61/6095 do not correspond to former or current IPC groups.
Concordance CPC : IPC for these groups is as follows:
- H04L 61/00 - H04L 61/6095 : H04L 61/6095

U H04L 61/25
   · {mapping of addresses of the same type; address translation (arrangements for maintenance or administration involving network analysis H04L 12/2414)}

U H04L 61/2503
   · · {Internet protocol [IP] address translation}

U H04L 61/256
   · · · {Network address translation [NAT] traversal}
H04L 61/2564
   · · · · {for a higher-layer protocol, e.g. for session initiation protocol [SIP] (SIP for real-time communications H04L 65/1006)}

U H04L 61/30
   · {Arrangements for managing names, e.g. use of aliases or nicknames (retrieval from the Internet by using information identifiers, e.g. uniform resource locators [URLs] G06F 17/30876 ; name-to-address mapping H04L 61/15)}

U H04L 61/3015
   · · {Name registration, generation or assignment}
H04L 61/302
   · · · {Administrative registration, e.g. for domain names at internet corporation for assigned names and numbers [ICANN] (data processing specially adapted for administration or management G06Q 10/00)}
NOTES
1. This group covers:
   1. Networking arrangements or communication protocols to support networked applications which occur at the abstract network layers 5 to 7 of the OSI layer model. The higher layers constitute the interface between the network and the computer applications that use the network to communicate.
   2. Network-specific aspects of client-server applications as well as of networking arrangements supporting networked/distributed applications, e.g. data transport, scheduling. This group also covers specific networked application layer protocols, e.g. FTP, WAP, HTTP.

2. This group does not cover:
   1. Distributed applications which are network-agnostic, i.e. distributed information systems for which the network functions are transparent. These field are covered, e.g. by G06F 9/00, G06F 17/00. Data switching network provisions in general and the lower layer network functionalities which support application layer provisions are covered by H04L 12/00]

WARNING
Groups H04L 67/00 - H04L 67/42 do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - H04L 67/00 - H04L 67/36 : H04L 29/08 - H04L 67/38 - H04L 67/42 : H04L 29/06 ]
H04L 67/1065  · · · {Discovery involving distributed pre-established resource-based relationships among peers, e.g. based on distributed hash tables [DHT] (pre-configuration of logical or physical connections H04L 67/1053)}

H04L 67/1097  · · {for distributed storage of data in a network, e.g. network file system [NFS], transport mechanisms for storage area networks [SAN] or network attached storage [NAS] (temporary storage of data at an intermediate stage H04L 67/2842; dedicated interfaces to storage systems G06F 3/0601)}

H04L 67/40  · {Protocols for remote procedure calls [RPC] (remote procedure calls G06F 9/547)}

U H04L 69/00  {Application independent communication protocol aspects or techniques in packet data networks (interconnection arrangements between CPUs, memories, or peripherals within a single computer G06F 13/00; data switching networks H04L 12/00; flow control H04L 12/569; routing of packets H04L 12/5689; network management H04L 12/24; network monitoring or testing H04L 12/26; network topologies, i.e. networks characterized by the path configuration, media access control H04L 12/28; intermediate storage or scheduling H04L 12/5694; packet switches and switching fabrics H04L 12/5696; message switching systems, e.g. email, H04L 12/58; broadcast or multicast H04L 12/18; hybrid switching systems H04L 12/64; gateways H04L 12/66; networks specially adapted for wireless communication H04W; transmission systems H04B)}

WARNING
Groups H04L 69/00 - H04L 69/40 do not correspond to former or current IPC groups. Concordance CPC:

IPC for these groups is as follows: - H04L 69/00 -

H04L 69/28 : H04L 29/06 - H04L 69/30

H04L 69/40 : H04L 29/14

H04L 69/16  · {Transmission control protocol/internet protocol [TCP/IP] or user datagram protocol [UDP] (transport layer addressing aspects H04L 61/6063; network layer protocol adaptations for supporting mobility, e.g. mobile IP, H04W 80/04; flow control or congestion control in data switching networks H04L 12/569; adapting video multiplex streams to a specific network H04N 21/2381; special adaptations of TCP, UDP or IP for interworking of IP based networks with other networks H04L 69/169)}

Project: N/A (H04M)

U H04M 1/00  Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges (prepayment telephone coin boxes H04M 17/00; current supply arrangements H04M 19/00; (telephone sets particularly adapted for data transmission H04M 11/066; network interface devices H04Q 1/028))

U H04M 1/247  · Telephone sets including user guidance or features selection means facilitating their use; { Fixed telephone terminals for accessing a variety of communication services via the PSTN network)

H04M 1/2473  · {Telephone terminals interfacing a personal computer, e.g. using an API (Application Programming Interface) (details of API H04M 7/0021)}

U H04M 1/64  · Automatic arrangements for answering calls; Automatic arrangements for recording messages for absent subscribers; Arrangements for recording conversations (centralised dictation systems H04M 11/10)

H04M 1/65  · Recording arrangements (for recording a message from the calling party (in the exchange H04M 3/50))
U  H04M 3/00  Automatic or semi-automatic exchanges {\{constructional details of telephone exchanges H04Q 1/02\}}

U  H04M 3/42  · Systems providing special services or facilities to subscribers

H04M 3/436  · · Arrangements for screening incoming calls, { i.e. evaluating the characteristics of a call before deciding whether to answer it (based on the calling party profile H04M 3/42059; based on location H04M 3/42348; based on presence H04M 3/42365; diversion H04M 3/54)}

Project: N/A (H04N)

H04N  PICTORIAL COMMUNICATION, e.g. TELEVISION \{measuring, testing G01; systems for autographic writing, e.g. writing telegraphy, which involve following an outline G08C 21/00; information storage based on relative movement between record carrier and transducer G11B; coding, decoding or code conversion, in general H03M; broadcast distribution or the recording of use made thereof H04H\}

NOTES

1. This subclass covers:
   • \{generation, recording or\} transmission of pictures or their transient or permanent reproduction either locally or remotely \{and the corresponding electronic image capture and reproduction process employing image representative electric signals,\} by methods or arrangements \{involving at least one of\} the following steps:
     a. the \{electronic acquisition or\} scanning of a picture \{or scene\} , i.e.
        resolving the whole picture-containing area into individual picture-elements and the derivation of picture-representative electric signals related thereto, simultaneously or in sequence {, e.g. by reading an electronic solid-state image sensor [SSIS] pickup device \{e.g. CCD or CMOS image sensor\} as electronic image sensor converting optical image information into said electrical signals;}
     b. the reproduction of the whole picture-containing area \{or scene\} by
        the reproduction of individual picture-elements into which the picture
        is resolved by means of picture representative electric signals derived
        therefrom, simultaneously or in sequence by converting an electric
        image signal into light e.g. with an electronic spatial light modulator;
   • concerning cameras or projectors:
     • video cameras or TV cameras, e.g. in studios, CCTV cameras,
        surveillance cameras, camcorders; constructional or mechanical details related to such cameras even when not peculiar to the presence of an electronic image sensor \{EIS\} e.g. housings;
     • arrangements or methods for image capture using an EIS or image projection using an electronic spatial light modulator \{ESLM\}, i.e.
        i. sensor read-out;
        ii. processing of electrical image signals from the EIS or provided to the ESLM for the generation of respective camera or projector control signals,
        • for controlling the EIS or its read-out for e.g. exposure, scene selection for auto focussing, or electronic image enhancement or processing of the image signals captured by the EIS, e.g. white balance, electronic motion blur correction, noise suppression H04N 5/00 ,
        • for controlling the ESLM, e.g. control of the light source based on electronic image signal, light conditioning specially adapted for the ESLM, or
        • for controlling other camera functions, e.g. exposure, shaking by influencing optical parts of the camera \{generation of control signals for focussing for optical elements G02B 7/28 \}; using such signals to control
focus of particular apparatus, see the subclasses for the apparatus, e.g. G03B, G03F, H04N):

- electronic image data storage (data storage in general G11B, G11C);
- in-camera image processing e.g. correction of lens distortion, defect pixel correction, noise suppression, removal of motion blur, improving of the dynamic range of the image, in-projector image processing, electronic image data manipulation, e.g. during display or projection (image processing per se G06T);
- electronic viewfinders e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS;
- electrical or mechanical aspects of camera modules using electronic image sensors, as well as related constructional details as in webcams or mobile phones (see H04M 1/0264 for mounting structure in mobile phones);
- details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM (dichroic or polarizing arrangements in general G02B, G03B);
- remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated image signal;
- adaptations peculiar to the use of a EIS or ESLM and/or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS, controlling the operation of the EIS by external input signals;
- systems or apparatus wherein the inventive contribution lies in the interaction between features covered in Notes 1 above, concerning cameras and projectors, when interacting with those covered in Note 1 of G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic motion blur correction of the electronic image sensor based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS;
- (in group H04N 1/00) systems for the transmission or the reproduction of arbitrarily composed pictures or patterns in which the local light variations composing a picture are not subject to variation with time, e.g. documents (both written and printed), maps, charts, photographs (other than cinematograph films);
- circuits specially designed for dealing with pictorial communication signals, e.g. television signals, as distinct from merely signals of a particular frequency range.

2. This subclass does not cover:

- circuits or other parts of systems which form the subject of other subclasses, which are covered by the corresponding subclasses, e.g. H03C, H03F, H03J, H04B, H04H;
- systems in which legible alphanumeric or like character forms are analysed according to step (a) of Note (1) to derive an electric signal from which the character is recognised by comparison with stored information, which are covered by subclass G06K;
- systems for the direct photographic copying of an original picture in which an electric signal representative of the picture is derived according to the said step (a) of and employed to modify the operation of the system, e.g. to control exposure, which are covered by class G03;
- systems for the reproduction according to step (b) of Note (1) of pictures comprising alphanumeric or like character forms but involving the production of the equivalent of a signal which would be derived according to the abovementioned step (a), e.g. by cams, punched card or tape,
coded control signal, or other means, which are covered by the subclass for the application, e.g. **G01D, G06T, H04L**;

- systems for the reproduction to the above-mentioned step (b) of pictures comprising alphanumeric or like character forms and involving the generation according to the abovementioned step (a) of picture-representative electric signals from a pre-arranged assembly of such characters, or records thereof, forming an integral part of the systems, which are covered by the subclass for the application, e.g. **B41B, G06K**, subject to those applications which are covered by this subclass;

- printing, duplication or marking methods, or materials or processes therefor, which are covered by the relevant subclasses, e.g. **B41C, B41M, G03C, G03F, G03G**;

- apparatus or methods for taking photographs using light sensitive film for image capture, apparatus/methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, and their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;

- aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus methods for taking photographs using light sensitive film, i.e. insofar as not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, and their related controls insofar as they are not peculiar to the presence or use of the EIS, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake);

- aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus/ methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, and their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;

- (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;

- optical viewfinders;

- remote control of cameras and projectors insofar not peculiar to the EIS or ESLM, e.g. not affecting their operation, or being based on a generated image signal;

- optical aspects of camera modules using electronic image sensors and related constructional details (optical elements or arrangements associated with solid state imager structures **H01L 27/14625**);

- constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM;

3. In this subclass, the following expression is used with the meaning indicated: "television systems" means those systems for the (electronic generation) , transmission and reproduction of arbitrarily composed pictures in which the local light variations composing a picture may change with time, e.g. natural "live" scenes, (electronic) recordings of such scenes such as cinematograph films.

4. In this subclass, as in subclass **G03B**, the following terms are used with the meaning indicated:

- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
• "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
• "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
• "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
• "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.

WARNING
The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:
- H04N 5/31 covered by G01S 7/52, G01S 15/89
- H04N 5/761 covered by H04N 5/782
- H04N 5/7613 covered by H04N 5/782
- H04N 5/7617 covered by H04N 5/782
- H04N 5/922 covered by H04N 5/92
- H04N 5/924 covered by H04N 5/92
- H04N 9/815 covered by H04N 9/81
- H04N 11/002 covered by H04N 11/002
- H04N 15/00 covered by H04N 13/00

H04N 1/00
Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof {(recording arrangements for measuring instruments G01D; sensing record carriers G06K 7/00; character or pattern recognition G06K 9/00; mosaic printer telegraph systems H04L 21/00)}

U H04N 1/024
- Details of scanning heads; {Means for illuminating the original (circuit details thereof H04N 1/40)}

U H04N 1/028
- for picture information pick-up

H04N 1/029
- Heads optically focused on only one picture element at a time {(H04N 1/0281 takes precedence)}

U H04N 1/032
- for picture information reproduction

H04N 1/034
- using ink, e.g. ink-jet heads {(H04N 1/0323 takes precedence)}

U H04N 1/04
- Scanning arrangements, i.e. arrangements for the displacement of active reading or reproducing elements relative to the original or reproducing medium, or vice versa) (H04N 1/387 takes precedence; { scanning by varying the direction of light in general G02B 26/10})

H04N 1/10
- using flat picture-bearing surfaces {(H04N 1/113, H04N 1/195 take precedence; arrangements for the main-scanning H04N 1/12)}

U H04N 1/19
- using multi-element arrays

U H04N 1/191
- the array comprising a one-dimensional array, {or a combination of one-dimensional arrays, or a substantially one-dimensional array, e.g. an array of staggered elements}

H04N 1/192
- Simultaneously (or substantially simultaneously) scanning picture elements on one main scanning line {(details of the sub-scanning H04N 1/10, H04N 1/12)}

U H04N 1/32
- Circuits or arrangements for control or supervision between transmitter and receiver {or between image input and image output device (H04N 1/38, H04N 1/387 take precedence)}
U H04N 1/32101 · · {Display, printing, storage or transmission of additional information, e.g. ID code, date and time or title}

U H04N 1/32106 · · · {separate from the image data, e.g. in a different computer file}

H04N 1/32117 · · · {in a separate transmission or protocol signal prior to or subsequent to the image data transmission, e.g. in digital identification signal (DIS), in non standard setup (NSS) or in non standard field (NSF) (for mode signalling H04N 1/333)}

H04N 1/327 · · Initiating, continuing or ending a single-mode communication; Handshaking therefor ((H04N 1/32614 takes precedence))

U H04N 1/41 · Bandwidth or redundancy reduction (by scanning H04N 1/17 ; {H04N 19/00 takes precedence; for data acquisition G06F 17/40 ; coding for image data processing in general G06T 9/00 ; data compression in general H03M 7/30})

U H04N 1/411 · · for the transmission (or storage)or reproduction of two-tone pictures, e.g. black and white pictures

U H04N 1/413 · · · Systems or arrangements allowing the picture to be reproduced without loss or modification of picture-information

H04N 1/419 · · · in which encoding of the length of a succession of picture-elements of the same value along a scanning line is the only encoding step {H04N 1/4135 to H04N 1/417 take precedence)}

H04N 1/46 · Colour picture communication systems {({colorimetry G01J 3/46)}

U H04N 1/56 · · Processing of colour picture signals (H04N 1/52 takes precedence)

H04N 1/60 · · · Colour correction or control ((H04N 1/54 takes precedence))

H04N 1/64 · · · Systems for the transmission or the storage of the colour picture signal; Details therefor, e.g. coding or decoding means therefor ((H04N 19/00 takes precedence))

U H04N 5/00 Details of television systems (scanning details or combination thereof with generation of supply voltages H04N 3/00 ; specially adapted for colour television H04N 9/00 ; { servers specially adapted for the distribution of content H04N 21/20 ; client devices specially adapted for the reception of or interaction with content H04N 21/40})

NOTE Groups H04N 5/341 to H04N 5/378 are based on IPC2012.01

U H04N 5/222 · Studio circuitry; Studio devices; Studio equipment;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles}

U H04N 5/225 · · · Television cameras;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles (optical systems G02B; associated working of recording or reproducing apparatus with TV camera or receiver in which the television signal is not significantly involved G11B 31/006 ; tubes H01J)}

H04N 5/247 · · · Arrangements of television cameras {(constructional details of cameras H04N 5/2251 ; stereoscopic picture signal generators H04N 13/0239 ; H04N 13/0242)}

U H04N 5/30 · Transforming light or analogue information into electric information (H04N 5/222 takes precedence; scanning details H04N 3/00 ; light transforming elements H01J , H01L)

H04N 5/32 · · · Transforming X-rays {(image transformers H01J 31/00)}
H04N 5/335 - - using solid-state image sensors [SSIS] (H04N 5/32, H04N 5/33 take precedence)

**NOTE**
In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place
Groups H04N 5/341 to H04N 5/378 are based on IPC2012.01

H04N 5/351 - - Control of the SSIS depending on the scene, e.g. brightness or motion in the scene ([circuitry for evaluating the brightness variations of the object H04N 5/2351])

H04N 5/353 - - Control of the integration time ([circuitry for compensating for variation in the brightness of the object by influencing the exposure time H04N 5/2353])

U H04N 5/357 - - Noise processing, e.g. detecting, correcting, reducing or removing noise
H04N 5/3572 - - {the noise resulting only from the lens unit, e.g. flare, shading, vignetting or "cos4" (suppressing or minimizing noise in picture signal generation H04N 5/217)}

U H04N 5/369 - - SSIS architecture; Circuitry associated therewith
H04N 5/372 - - Charge-coupled device [CCD] sensors; Time delay and integration [TDI] registers or shift registers specially adapted for SSIS ([charge coupled imager structure H01L 27/148])
H04N 5/374 - - Addressed sensors, e.g. MOS or CMOS sensors ([MOS imager structure H01L 27/14643])

U H04N 5/38 - - Transmitter circuitry (H04N 5/14 takes precedence)
H04N 5/40 - - Modulation circuits ([in general H03C 1/00, H03C 3/00, H03C 5/00])

U H04N 5/44 - - Receiver circuitry (H04N 5/14 takes precedence)
H04N 5/52 - - Automatic gain control ([in general H03G])
H04N 5/60 - - for the sound signals ([for silent tuning, i.e. muting H04N 5/505])
H04N 5/62 - - Intercarrier circuits, i.e. heterodyning sound and vision carriers ([H04N 5/607 takes precedence])

U H04N 5/66 - - Transforming electric information into light information (scanning details H04N 3/00; {electro- or magneto optic devices G02F 1/00; CRT`s H01J})
H04N 5/68 - - Circuit details for cathode-ray display tubes ([deviation circuits H04N 3/16, H03K 4/00])

U H04N 5/76 - - Television signal recording (diagnosis, testing or measuring for television signal recorders H04N 17/06; recording in connection with measuring G01D; information storage in which the television signal is not involved, driving, starting, stopping, head switching, editing, indexing) in general G11 (e.g. G11B)

U H04N 5/91 - - Television signal processing therefor (of colour signals H04N 9/79)
H04N 5/911 - - for the suppression of noise ([H04N 5/932 takes precedence])
H04N 5/92 - - Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback ([transmitter circuitry H04N 5/38; receiver circuitry H04N 5/44])
H04N 5/923 - - using preemphasis of the signal before modulation and deemphasis of the signal after demodulation ([volume compression or expansion in amplifiers in general H03G 7/00])

U H04N 5/93 - - Regeneration of the television signal or of selected parts thereof
H04N 5/95 - - Time-base error compensation ([H04N 5/932 takes precedence])
Television systems (details H04N 3/00, H04N 5/00; methods or arrangements, for coding, decoding, compressing or decompressing digital video signals H04N 19/00; selective content distribution H04N 21/00)

- Systems for the transmission of digital non-picture data, e.g. of text during the active part of a television frame (transmission of digital non-picture data during the vertical blanking interval only H04N 7/088)
- Systems for the transmission of one television signal, i.e. both picture and sound, by a single carrier (H04N 7/084, H04N 7/087 take precedence)
- Systems for the simultaneous transmission of one television signal, i.e. both picture and sound, by more than one carrier (H04N 7/084, H04N 7/087 take precedence)

Systems rendering the television signal unintelligible and subsequently intelligible (secret communication in general H04K 1/00)

Closed circuit television systems, i.e. systems in which the signal is not broadcast (television transmission of measured quantities G01D 5/39; intruder alarm or detection by television surveillance G08B 13/196)

Systems for the transmission of television signals using pulse code modulation (H04N 21/00 takes precedence)

Systems for transmission of a pulse code modulated video signal with one or more other pulse code modulated signals, e.g. an audio signal or a synchronizing signal (assembling of a multiplex stream by combining a video stream with other content or additional data, remultiplexing of multiplex streams, insertion of stuffing bits into the multiplex stream, assembling of a packetised elementary stream at server side H04N 21/236; disassembling of a multiplex stream, remultiplexing of multiplex streams, extraction or processing of Service Information, disassembling of packetised elementary stream at client side H04N 21/434)

• the signals being synchronous (H04N 21/23602, H04N 21/23614, H04N 21/2365, H04N 21/2368, H04N 21/4341, H04N 21/4342, H04N 21/4347, H04N 21/4348 take precedence)

Details of colour television systems

- Picture reproducers (devices or arrangements for the electro-, magneto- or acousto-optical modulation or deflection of light beams G02F)
- using solid-state colour display devices (indicating devices using static means to present variable information G09G)
- Projection devices for colour picture display (e.g. using electronic spatial light modulators [ESLM] (projection devices using film stock, photographic film or slides, G03B 21/00 and subgroups))

- Circuits for processing colour signals (H04N 9/77 takes precedence)
- I.F amplifiers, (amplifiers in general H03F)
- Processing of colour television signals in connection with recording
- Regeneration of colour television signals (H04N 9/80 takes precedence)
- using frequency multiplication of the reproduced colour signal carrier with another auxiliary reproduced signal, e.g. a pilot signal carrier (H04N 9/83 takes precedence)

Stereoscopic (or multiview)television systems; Details thereof

NOTE
This group covers systems where a three-dimensional effect or different views according to the viewpoint location are provided to one or more viewers by means of electronic signals representing a plurality of images or signals including
depth information, e.g. taken from different viewpoint locations representing the interocular distance (optical systems for producing stereoscopic or other three dimensional effects G02B 27/22]]

H04N 13/04

- Picture reproducers (optical systems for producing stereoscopic or other three dimensional effects G02B 27/22)

H04N 21/00

Selective content distribution, e.g. interactive television, VOD [Video On Demand] (broadcast communication H04H; arrangements, apparatus, circuits or systems for communication control or processing being characterised by a protocol H04L 29/06; { broadcast or conference over packet-switching networks H04L 12/18, } real-time bi-directional transmission of motion video data H04N 7/14)

NOTES

1. This group covers:
- interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements.
- such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process.
- typically, system operators interface with transmitter-side elements or users’ interface with receiver-side elements in order to facilitate, through interaction with such elements, the dynamic control of data processing or data flow at various points in the system. This interaction is typically occasional or intermittent in nature.
- processes, systems or elements thereof specially adapted to the generation, distribution and processing of data, which is either associated with video content, e.g. metadata, ratings, or related to the user or his environment and which has been actively or passively gathered. This data is either used to facilitate interaction or to alter or target the content.

2. In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place

3. In this main group, the following terms and expressions are used with the meaning indicated:
    additional data - designates still pictures, textual, graphical or executable data such as software. It is used to convey supplemental information and can be generated prior to or during the distribution process itself, e.g. metadata, keys.
    content designates video or audio streams, which may be combined with additional data. Video data will always be present and occupy most of the downlink bandwidth in the distribution process
    server - designates an apparatus designed for adapting the content received from the content provider to the distribution network. It also manages the distribution to client devices or intermediate components over a network. Further servers may also be present for gathering or generating additional data, e.g. rights management server
    additional data server - designates a server, which sole purpose is the distribution or management of additional data. It is not in charge of the distribution of video or audio data
    client - designates an apparatus such as a TV receiver, a set-top-box, a PC-TV, a mobile appliance (e.g. mobile phone or receiver in a vehicle), for receiving video, audio and possibly additional data from one or several
servers or intermediate components via a network for further processing, storing or displaying. It can also transmit this data on a home-based local network to further devices, e.g. a home server transmitting video to PCs and set-top-boxes within a home.

local network - pertains to a restricted area, e.g. a home or a vehicle, and designates the link between a client and its peripheral devices

network - is to be distinguished from "local network": "network" designates the link between the server and the clients, or between the server and the intermediate components, or between the intermediate components and the clients, or between remotely located clients

distribution - encompasses broadcasting, multicasting and unicasting techniques for transmitting content from one or more sources to one or more receiving stations. The distribution follows a request by a receiving station to the source, e.g. VOD or from a customization of the content by the source, e.g. targeting advertisements to a demographic group in a unidirectional or bidirectional system. Additionally, distribution encompasses techniques where the client acts as a source and another client acts as a receiving station, e.g. a peer-to-peer system for sharing video among client devices

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end-user - designates a physical person, e.g. a TV viewer, who consumes the content using the client device. He is the final recipient of the content distributed by the server

interaction - covers actions occurring between or among two or more objects that have an effect upon one another, wherein objects comprise users, system operators, system elements, or content. The user may interact with content locally at the client device, e.g. for requesting additional data stored within the client device. The user may interact with content remotely through a server e.g. for VOD playback control or for uploading video to a server. The client device may interact with the content e.g. selecting content based upon the user profile. The client device may interact with a server using a return channel, e.g. for authenticating client or uploading client hardware capabilities. The server may interact with a client device, e.g. to force a client to tune to an advertisement channel upstream - designates the direction of data flow towards the source, e.g. a server receiving a request via a mobile phone network downstream - designates the direction of data flow towards a client, e.g. a client receiving data originating from a server elementary stream

An elementary stream (ES) as defined by the MPEG system layer designates the output of an audio or video encoder

U H04N 21/20
· {Servers specifically adapted for the distribution of content, e.g. VOD servers; Operations thereof}

U H04N 21/23
· · {Processing of content or additional data; Elementary server operations; Server middleware}

H04N 21/236
· · · {Assembling of a multiplex stream, e.g. transport stream, by combining a video stream with other content or additional data, e.g. inserting a Uniform Resource Locator [URL] into a video stream, multiplexing software data into a video stream; Remultiplexing of multiplex streams; Insertion of stuffing bits into the multiplex stream, e.g. to obtain a constant bit-rate; Assembling of a packetized elementary stream ((multiplexing of data packets for data networks, e.g. RTP/UDP H04L 65/00; stereoscopic image multiplexing or transmission H04N 13/0003))}

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H04N 21/242  · · · (Synchronization processes, e.g. processing of Program Clock References [PCR] (synchronisation arrangements in time-division multiplex systems H04J 3/06 ; arrangements for synchronising broadcast or distribution via plural systems in broadcast distribution systems H04H 20/18 ; arrangements for synchronising receiver with transmitter H04L 7/00 ; synchronising circuits with arrangements for extending range of synchronisation at the transmitter end H04N 5/067))

U H04N 21/25  · · · (Management operations performed by the server for facilitating the content distribution or administrating data related to end-users or client devices, e.g. end-user or client device authentication, learning user preferences for recommending movies (maintenance or administration in data networks H04L 12/24))

U H04N 21/254  · · · (Management at additional data server, e.g. shopping server, rights management server (arrangements for maintenance or administration in data networks H04L 12/24 ; Protocols involving third party service providers for network applications in communication control or processing H04L 29/08666))

H04N 21/2543  · · · Billing (e.g. for subscription services (payment schemes, architectures or protocols G06Q 20/00 ; e-commerce G06Q 30/00; arrangements for billing for the use of broadcast information or broadcast-related information H04H 60/21 ; charging arrangements in data networks H04L 12/14))

U H04N 21/266  · · · (Channel or content management, e.g. generation and management of keys and entitlement messages in a conditional access system, merging a VOD unicast channel into a multicast channel)

H04N 21/26606  · · · (for generating or managing entitlement messages, e.g. Entitlement Control Message [ECM] or Entitlement Management Message [EMM] (arrangements for conditional access to broadcast information or to broadcast-related services H04H 60/14))

U H04N 21/40  · Client devices specifically adapted for the reception of or interaction with content, e.g. set-top-box [STB]; Operations thereof ((arrangements for distribution where lower stations, e.g. receivers, interact with the broadcast H04H 20/38 ; arrangements specially adapted for receiving broadcast information H04H 40/00))

U H04N 21/41  · · · (Structure of client; Structure of client peripherals)

U H04N 21/414  · · · (Specialised client platforms, e.g. receiver in car or embedded in a mobile appliance)

H04N 21/4147  · · · (Personal Video Recorder [PVR] (H04N 5/76 takes precedence; arrangements for broadcast specially adapted for accumulation-type receivers H04H 20/40))

H04N 21/422  · · · (using)Input-only peripherals {i.e. input devices connected to specially adapted client devices (input devices also receiving signals from specially adapted client devices H04N 21/4104), e.g. Global Positioning System [GPS] (input arrangements or combined input and output arrangements for interaction between user and computer G06F 3/01)

U H04N 21/43  · · · (Processing of content or additional data, e.g. demultiplexing additional data from a digital video stream; Elementary client operations, e.g. monitoring of home network, synchronizing decoder’s clock; Client middleware (demultiplexing of data packets for data networks, e.g. RTP/UDP H04L 29/06176))
Disassembling of a multiplex stream, e.g. demultiplexing audio and video streams, extraction of additional data from a video stream; Remultiplexing of multiplex streams; Extraction or processing of SI; Disassembling of packetized elementary stream {(demultiplexing of data packets for data networks, e.g. RTP/UDP H04L 65/00 ; stereoscopic image multiplexing or transmission H04N 13/0003)}

Acquiring end-user identification {(authentication in wireless communication networks H04W 12/06 e.g. using personal code sent by the remote control or by inserting a card (restricting access to computer systems by authenticating users using a predetermined code G06F 21/33))

(OS processes, e.g. booting a STB, implementing a Java virtual machine in a STB, power management in a STB (arrangements for program loading or initiating G06F 9/445 ; boot device selection; loading of operating system G06F 9/4406 ; program loading or initiating in general using non-volatile memory from which the program can be directly executed G06F 9/44588)}

Input to filtering algorithms, e.g. filtering a region of the image {(filtering for image enhancement or restoration G06T 5/00)}

Scheduling content for creating a personalized stream, e.g. by combining a locally stored advertisement with an incoming stream; Updating operations, e.g. for OS modules; time-related management operations (arrangements for replacing or switching information during the broadcast or during the distribution H04H 20/10)}

(Content or additional data management e.g. creating a master electronic program guide from data received from the Internet and a Head-end, controlling the complexity of a video stream by scaling the resolution or bit-rate based on the client capabilities)

Processing of entitlement messages, e.g. Entitlement Control Message [ECM], Entitlement Management Message [EMM] (arrangements for conditional access to broadcast information or to broadcast-related services H04H 60/14)}

Rights management (associated to the content (protecting software against unauthorised usage in a vending or licensing environment G06F 21/10 ; security in data switching network management H04L 12/2461 ; security management or policies for network security H04L 29/06986 ; access security in wireless networks H04W 12/08)}

{End-user applications (interaction techniques for graphical user interfaces G06F 3/048 ; receiver circuitry for displaying additional information H04N 5/445 ; software engineering for user interfaces G06F 8/20 ; services or applications for real-time multimedia communications H04L 29/06387)}

{Supplemental services, e.g. displaying phone caller identification, shopping application}

Web browsing, e.g. WebTV (information retrieval from the Internet G06F 17/30861 ; protocols for network applications involving the use of web-based technology H04L 29/0809)}
D) H04N 21/60  · (using) Network structure or processes (specifically adapted) for video distribution between server and client or between remote clients (data switching networks H04L 12/00; wireless communication networks H04W); Control signaling (specific to video distribution) between clients, server and network components, e.g. to video encoder or decoder; Transmission of management data between server and client, e.g. sending from server to client commands for recording incoming content stream; Communication details between server and client (Protocols for communication control and processing in data networks H04L 29/06; Protocols for client-server architecture H04L 67/42).

D) H04N 21/63  · · Control signaling (related to video distribution) between client, server and network components; Network processes for video distribution between server and clients (or between remote clients), e.g. transmitting basic layer and enhancement layers over different transmission paths, setting up a peer-to-peer communication via Internet between remote STB's; Communication protocols; Addressing (signalling, control or architecture for real-time multimedia communications H04L 29/06183; arrangements for peer-to-peer communications H04L 29/08306).

D) H04N 21/637  · · · (Control signals issued by the client directed to the server or network components)
D) H04N 21/6373  · · · · for rate control (e.g. request to the server to modify its transmission rate (flow control in packet networks H04L 12/569)).

D) H04N 21/80  · (Generation or processing of content or additional data by content creator independently of the distribution process; Content per se (arrangements for generating broadcast information H04H 60/02)).

D) H04N 21/83  · · (Generation or processing of protective or descriptive data associated with content; Content structuring).
D) H04N 21/835  · · · (Generation of protective data, e.g. certificates (protecting software against unauthorised usage in a vending or licensing environment G06F 21/10)).
D) H04N 21/8358  · · · · involving watermark ((protecting executable software by watermarking G06F 21/16; image watermarking in general G06T 1/0021; watermarks inserted in still images for transmission purposes H04N 1/32144; inserting watermarks during video coding H04N 19/467)).

D) H04N 21/85  · · (Assembly of content; Generation of multimedia applications).

D) H04N 21/854  · · · (Content Authoring).
D) H04N 21/8543  · · · · (using a description language, e.g. Multimedia and Hypermedia information coding Expert Group [MHEG], eXtensible Markup Language [XML] (information retrieval of semistructured data, the underlying structure being taken into account, e.g. mark-up language structure data G06F 17/30908)).

D) H04N 2201/00  Indexing scheme relating to scanning, transmission or reproduction of documents or the like, and to details thereof.

D) H04N 2201/0077  · Types of the still picture apparatus.

NOTE
Subgroups H04N 2201/0077 to H04N 2201/0094 are for use with H04N 1/00 and subgroups.

D) H04N 2201/0091  · · Digital copier; digital 'photocopier' (H04N 2201/0093 and H04N 2201/0094 take precedence).

Project: N/A (H04R)

D) H04R 1/00  Details of transducers, (loudspeakers or microphones).
NOTES
1. This group covers details of headphones, both of monophonic and stereophonic type.
2. When classifying in this group or in its subgroups, aspects relating to stereophonic headphones are to be classified in H04R 5/033 as well.

U H04R 1/20 Arrangements for obtaining desired frequency or directional characteristics (for stereophonic purpose H04R 5/00)
H04R 1/32 for obtaining desired directional characteristic only ((specially adapted for hearing aids H04R 25/40))
H04R 1/34 by using a single transducer with sound reflecting, diffracting, directing or guiding means ((specially adapted for hearing aids H04R 25/402))
H04R 1/40 by combining a number of identical transducers ((specially adapted for hearing aids H04R 25/405))

U H04R 3/00 Circuits for transducers (loudspeakers or microphones)
H04R 3/005 for combining the signals of two or more microphones (specially adapted for hearing aids H04R 25/407))
H04R 3/02 for preventing acoustic reaction (i.e. acoustic oscillatory feedback (specially adapted for hearing aids H04R 25/453))
H04R 3/12 for distributing signals to two or more loudspeakers ((specially adapted for hearing aids H04R 25/407))

U H04R 5/00 Stereophonic arrangements (stereophonic pick-ups H04R 9/16, H04R 11/12, H04R 17/08, H04R 19/10)
NOTE
In this group, the expression "stereophonic arrangements" covers quadraphonic or similar arrangements.

H04R 5/033 Headphones for stereophonic communication ((details thereof, e.g. relating to batteries, cables or control elements H04R 1/10))
H04R 5/04 Circuit arrangements, e.g. for selective connection of amplifier inputs/outputs to loudspeakers, for loudspeaker detection, or for adaptation of settings to personal preferences or hearing impairments (combinations of amplifiers H03F 3/68; stereophonic systems H04S)

H04R 29/00 Monitoring arrangements; Testing arrangements ((for hearing aids H04R 25/30; detection of loudspeaker connection H04R 5/04; sound-field adaptation dependent on speaker detection H04S 7/308))

H04R 31/00 Apparatus or processes specially adapted for the manufacture of transducers or diaphragms therefor ((manufacture of microstructural arrangements of deformable or non-deformable structures in general B81C 1/00182))
H04W 4/00 {Mobile application}services or facilities specially adapted for wireless communication networks {network arrangements or communication protocols for networked applications H04L 67/00 ; network arrangements or protocols for real-time communications H04L 65/00 ; network arrangements or network protocols for addressing or naming H04L 61/00 ; application independent communication protocol aspects and techniques in packet data networks H04L 69/00 ; network architectures or network communication protocols for network security H04L 63/00 ; wireless network security H04W 12/00 ; message switching systems H04L 12/58 ; arrangements for broadcast or conference H04L 12/18 ; telephonic communication, substation extension arrangements, cordless telephones, portable communication terminals with improved user interface to control a main telephone operation mode or to indicate the communication status H04M 1/72522 ; automatic or semi-automatic exchanges for telephonic communication - systems providing special services or facilities to subscribers H04M 3/42)}

NOTES
1. This groups covers mobile application services or application service signalling for communication over wireless networks.
2. This group focuses on application services specially adapted for wireless networks or adjusted to the wireless environment

H04W 4/005 · {for Machine-to-Machine communication [M2M, MTC], e.g. 3GPP M2M, OMA M2M, 3GPP MTC or Wireless Sensor Networks [WSN] (self-organizing networks H04W 84/18 ; network arrangements or communication protocols for networked applications adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car, remote metering networks H04L 67/12 ; mechanical means for transferring the output of a sensing member G01D 5/00)}

H04W 4/06 · Selective distribution or broadcast {application services; Mobile application}services to user groups; One-way selective calling services {connection management for selective distribution or broadcast H04W 76/002 ; resource management for broadcast services H04W 72/005}

H04W 4/10 · · Push-to-Talk {mobile application services}or Push-on-Call {mobile application}services {arrangements for real-time multimedia Push-to-X-Services H04L 65/4061 ; connection management for Push-to-Talk or Push-on-Call services H04W 76/005}

H04W 4/12 · · {Mobile application service signalling using}messaging, e.g. SMS [Short Message Service]; {Mobile application service signalling using}mailboxes; {Mobile application service signalling using}announcements, e.g. informing users on the status or progress of a communication request {message switching systems H04L 12/58 ; voice mail systems H04M 3/533 ; arrangements for providing announcements H04M 3/487}

H04W 4/16 · · {Mobile application service signalling using}communication-related supplementary services, e.g. call-transfer or call-hold {automatic or semi-automatic exchange systems providing special services or facilities to subscribers H04M 3/42}

H04W 4/18 · · {Customizing content of application services or}information format or content conversion, e.g. adaptation by the network of the transmitted or received information for the purpose of wireless delivery to users or terminals {network arrangements or communication protocols for networked applications involving intermediate processing or storage in the network, e.g. proxy, H04L 67/28 ; message adaptation based on network or terminal capabilities for message switching systems H04L 12/5825)}}
H04W 4/22

· Mobile application service emergency connection handling (or mobile application services handling urgent or hazardous situations, e.g. 3GPP earthquake and tsunami warning system [ETWS] (connection management for emergency connection handling H04W 76/007; centralised arrangements for answering calls for emergency applications requiring operator intervention H04M 3/5116))

U H04W 28/00

Network traffic or resource management

U H04W 28/02

· Traffic management, e.g. flow control or congestion control
  · · using specific QoS parameters for wireless networks, e.g. QoS class identifier [QCI] or guaranteed bit rate [GBR] (negotiating SLA or negotiating QoS H04W 28/24)

H04W 28/0268

· adapting protocols for flow control or congestion control to wireless environment, e.g. adapting transmission control protocol [TCP] (wireless network protocols or protocol adaptations to wireless operation, e.g. wireless application protocol H04W 80/00)

H04W 28/04

· Error control, e.g. treating errors, collisions, noise or interference (arrangements for detecting or preventing errors in the information received H04L 1/00)

H04W 52/00

Power Management, e.g. TPC [Transmission Power Control], power saving or power classes ((gain control in transmitters or power amplifiers H03G 3/3042))

H04W 52/02

· Power saving arrangements (in wired systems H04L 12/12; signaling of mobile application services, e.g. low battery notifications H04W 4/20)

U H04W 80/00

Wireless network protocols or protocol adaptations to wireless operation, e.g. WAP [Wireless Application Protocol]

H04W 80/08

· Upper layer protocols (network arrangements or communication protocols for networked applications H04L 67/00)

H04W 80/10

· adapted for (application) session management, e.g. SIP [Session Initiation Protocol] (connection management H04W 76/00; arrangements for session management H04L 67/14)

Project: N/A (H05B)

U H05B 37/00

Circuit arrangements for electric light sources in general ((vehicle lights B60L 1/14, B60Q; railways light signals B61Q; lighting for photographic purposes G03B 15/02, for advertising purposes G09F))

U H05B 37/03

· Detecting lamp failure (monitoring vehicle lamps B60Q 11/00; changing to a reserve source of current H02J 9/00)

H05B 37/04

· Circuits providing for substitution of the light source in case of its failure (e.g. by switching over to a reserve light source (incandescent lamps with reserve body H01K))

U H05B 39/00

Circuit arrangements or apparatus for operating incandescent light sources and not adapted to a particular application (incandescent lamps per se H01K)

U H05B 39/04

· Controlling (regulating voltage in general G05F)

H05B 39/08

· by shifting phase of trigger voltage applied to gas-filled controlling tubes (also in controlled semiconductor devices (in converters H02M 5/00; with regulation G05F 1/44))

Project: N/A (H05G)

U H05G 1/00

X-ray apparatus involving X-ray tubes; circuits therefor
Electrical details

Measuring, controlling, protecting (measuring electric values G01R; measuring X-ray intensity G01T)

Controlling

temperature of anode; brightness of image (power (electrical temperature regulating in general G05D 23/19))

Circuit arrangements for X-ray tubes with more than one anode; Circuit arrangements for apparatus comprising more than one X ray tube (or more than one cathode (H05G 1/58 takes precedence))

Details of devices of the types covered by groups H05H 9/00, H05H 11/00, H05H 13/00

Magnet systems (e.g. undulators, wigglers (free-electron laser H01S 3/0903)); Energisation thereof

Printed circuits (assemblies of a plurality of individual semiconductor or solid state devices H01L 25/00; devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits, H01L 27/00)

Use of materials for the substrate (substrates for semiconductor chips H01L 23/00)

incorporating printed electric components, e.g. printed resistor, capacitor, inductor (thick-film or thin-film circuits H01L 27/01, H01L 27/13)

Apparatus or processes for manufacturing printed circuits (photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general G03F; involving the manufacture of semiconductor devices H01L)

in which the conductive material is applied to the surface of the insulating support and is thereafter removed from such areas of the surface which are not intended for current conducting or shielding

the conductive material being removed chemically or electrolytically, e.g. by photo-etch process (Non-mechanical removal of metallic material from surfaces C23F; semi-additive methods H05K 3/108)

the conductive material being removed by electric discharge, e.g. by spark erosion (working of metal by electro-erosion per se B23H)

in which conductive material is applied to the insulating support in such a manner as to form the desired conductive pattern

using spraying techniques to apply the conductive material (including vapour evaporation; covering metals by metal spraying C23C 4/00; coating by vacuum evaporation C23C 14/00)

by cathodic sputtering (covering materials by cathodic sputtering C23C 14/34; discharge devices therefor H01J 37/34)

using precipitation techniques to apply the conductive material (chemical coating of a substrate by decomposition C23C 18/00)
by affixing prefabricated conductor pattern \((H05K 1/187, H05K 3/046, H05K 3/4658, H05K 3/4682\) takes precedence))

- Secondary treatment of printed circuits \((H05K 3/1283\) takes precedence; embedding circuits in grooves by pressure \(H05K 3/107)\)

- Reinforcing the conductive pattern \((by\ solder\ coating\ H05K 3/3457)\)

- Applying non-metallic protective coatings \((H05K 3/0091\) takes precedence; methods for intermediate insulating layers for build-up multilayer circuits \(H05K 3/4673)\)

- Assembling printed circuits with electric components, e.g. with resistor

- Electrically connecting electric components or wires to printed circuits

- by soldering \(((soldering\ or\ desoldering\ apparatus\ H05K 13/04, B23K 1/00, B23K 3/00)\)

- Manufacturing multilayer circuits \((incorporating\ non-printed\ electric\ components\ in\ internal\ layers\ H05K 1/185)\)

- Casings, cabinets or drawers for electric apparatus \((in\ general\ A47B;\ radio\ receiver\ cabinets\ H04B 1/08;\ television\ receiver\ cabinets\ H04N 5/64; constructive\ details\ or\ arrangements\ for\ computers\ G06F 1/16)\)

- Hermetically-sealed casings \((specially\ adapted\ for\ small\ components\ H05K 5/0095)\)

- Constructional details common to different types of electric apparatus \((casings,\ cabinets,\ drawers\ H05K 5/00)\)

- Mounting supporting structure in casing or on frame or rack \((H05K 7/18\) takes precedence; test adapters \(G01R 31/2808)\)

- Modifications to facilitate cooling, ventilating, or heating \((of\ printed\ circuits\ H05K 1/0201;\ of\ resistors\ H01C;\ of\ capacitors\ H01G;\ of\ individual\ semiconductor\ components\ H01L 23/34, H01L 31/024;\ of\ LEDs\ H01L 33/64; of\ personal\ computers\ G06F 1/20)\)

- (characterised by the heat transfer by conduction from the heat generating element to a dissipating body \(\text{arrangements\ for\ increasing/decreasing\ heat-transfer},\ e.g.\ fins\ details,\ F28F 13/00))

- Thermal paths through the printed circuit board [PCB] \(\text{details\ of\ PCBs\ related\ to\ heat\ transfer\ H05K 1/0201})\)

- Combination of a radio or television receiver with apparatus having a different main function \((\text{combined\ with\ clocks\ G04B 47/00;\ controlled\ by\ a\ clock\ G04C 21/28})\)

**Project: Project-Y02W (Y02W)**

**N Y02W**

**CLIMATE CHANGE MITIGATION TECHNOLOGIES RELATED TO WASTEWATER TREATMENT OR WASTE MANAGEMENT**

**N Y02W 10/00**

Technologies for wastewater treatment \((fuel\ from\ waste\ Y02E 50/30;\ methane\ from\ waste\ for\ energy\ generation\ Y02E 50/34)\)

- Biological treatment of water, waste water, or sewage

- Anaerobic processes with biogas recycling, capture or flaring

- Aerobic processes

- Constructed wetlands

- Sludge processing

- Anaerobic processes with biogas recycling, capture or flaring

- Aerobic processes
Wastewater or sewage treatment systems with climate change mitigation effect characterised by the origin of the energy

- using wind energy
- using solar energy
- Valorisation of by-products of wastewater, sewage or sludge processing
- Obtention of bio-polymers

Technologies for solid waste management (heat utilisation in combustion or incineration of waste Y02E 20/12; fuel from waste Y02E 50/30; methane from waste for energy generation Y02E 50/34)

- Related to waste collection, transportation, transfer or storage e.g. segregated refuse collecting, electric or hybrid propulsion
- Related to waste processing or separation (separation techniques Y02W 30/52; separating plastic from other materials Y02W 30/62; removing refrigerant Y02W 30/82)
- Landfill technologies aiming to mitigate methane emissions
- Sealing or covering
- Landfill gas capture
- Landfill gas flaring
- Bio-organic fraction processing; Production of fertilisers from the organic fraction of waste or refuse
- Aerobic fermentation, e.g. composting
- Anaerobic fermentation, e.g. methanation combined with capture, recycling or flaring
- Reuse, recycling or recovery technologies
- Dismantling or mechanical processing of waste for the recovery of materials during separation, disassembly, pre-processing or upgrading
- Crushing or shredding
- Separation techniques
- Sieving or screening
- based on density or gravimetry
- using wind or air currents
- Magnetic separation
- Electrostatic separation
- inducing eddy-currents
- Metal recycling
- Manufacture of articles from waste metal particles
- Recovery or treatment of by-products during pig-iron manufacturing (use of waste of metallurgical processes as filler for mortars or concrete Y02W 30/94)
- Treatment of liquid slag
- Disassembly of vehicles for recovery of salvageable parts
- Construction or demolition [C&D] waste
- Glass recycling
- Glass containers reutilization
- Plastics recycling
- Separating plastics from other materials
- Disintegrating plastics
Plastic containers reutilization
Paper recycling
Dry methods for dividing waste paper into small particles
by cutting actions
Wet methods for dividing waste paper into small particles
Recovery of cellulose by working-up waste paper
Disintegrating fibre-containing textile articles to obtain fibres for re-use
Opening, unravelling or teasing ropes or like fibrous strands to obtain fibres for re-use
Opening rags to obtain fibres for re-use
Rubber waste recycling
Utilisation of recycled rubber in footwear
Utilisation of recycled tires for hydraulic engineering
Recovery of polymers other than plastics or rubbers
without chemical reactions
by chemically breaking down the molecular chains of polymers or breaking of crosslinks, e.g. devulcanisation
by dry-heat treatment only
by treatment with steam or water
by treatment with inorganic material
by treatment with organic material
Recovery of luminescent materials
Recovery of fats, fatty oils, fatty acids or other fatty substances, e.g. lanolin or waxes
Recovery of tanning agents from leather
Recycling of wood or furniture waste (production of fertilisers from the organic fraction of waste or refuse Y02W 30/40)
Packaging reuse or recycling (bio-packaging Y02W 90/10)
Technologies specific to multilayer packaging
Packaging eco-design or eco-conception
Packaging containers made of recycled materials
the recycled material being paper
Packaging containers especially suited for or with means facilitating recycling
Packaging containers consisting of two or more parts made of the same material
Packaging containers especially suited for or with means facilitating reusability
Recycling of waste of electrical or electronic equipment [WEEE]
Recovery of metals from electric or electronic cables or wires scrap (metal recycling Y02W 30/54)
Recovery of materials from electronic scrap, e.g. printed circuit board scrap
Technologies specific to particular WEEE categories
Refrigerators
Removing refrigerant
Information technology [IT] or telecommunication equipment
Consumers equipment or photovoltaic panels
Lighting equipment or discharge tubes
Lighting devices made of waste or recyclable material
Recycling of batteries
Recycling of fuel cells
Nuclear fuel reprocessing
Apparatus or processes for dismantling nuclear fuel, e.g. before reprocessing
Reprocessing of irradiated solid fuel
Aqueous processes, e.g. based on organic extraction means or regeneration thereof
Non-aqueous processes
Reuse, recycling or recovery technologies cross-cutting to different types of waste
Use of waste materials as fillers for mortars or concrete
Combustion residues, e.g. purification products of smoke, fumes or exhaust gases
from quarries, mining or the like
from metallurgical processes
from building or ceramic industry
organic e.g. rubber, polystyrene
Vegetable refuse, e.g. rice husks, maize-ear refuse; cellulosic materials, e.g. paper

Enabling technologies or technologies with a potential or indirect contribution to greenhouse gas [GHG] emissions mitigation
Bio-packaging
Packing containers made from renewable resources
Packing containers made of bio-plastics
Biodegradable packaging containers
Compostable packaging containers
Computer systems or methods specially adapted for waste reduction or recycling of materials or goods